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## Drought.

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Who feels like work, who can work, under this dead September heat? Will scientists explain why the same temperature in June and September is so much more intolerable in the latter case? Is the September heat unpolarized heat? Certain it is that a temperature which we can easily bear in June is grievously distressing in September. Who will rise to explain?

One would think that, having been accustomed to the heat of summer, we could better bear a high temperature in September than in the early summer, but it is not so.

But we are contending now not with heat only, but with a severe and protracted drought. The drought now upon us is severe, because the atmosphere is extremely arid. Droughts occurring at the same seasons in different years, and with the temperature of the atmosphere the same, may be very unequally disastrous. In one case the blades of corn may twist and wilt in ten days after the drought sets in; in another case not for three weeks or more—perhaps not at all. Why? We must remember that seventy-five per cent, and frequently more, of living vegetation is water, and that this water is just as much a part of the plant as the condensed solids that constitute the vegetable skeleton. Now, water is always passing, by evaporation, from the leaves of plants, and the rate of evaporation depends chiefly upon the hygrometric condition of the atmosphere. When the atmosphere is very dry, it sucks up moisture from plants rapidly; when the atmosphere is humid, evaporation takes place slowly, and is arrested altogether when the atmosphere is saturated with aqueous vapor. It is obvious then that evaporation may take place very rapidly during a drought, making the drought disastrous; or very slowly, so making the drought comparatively harmless. For more particular illustration, let us say that it has not rained for two weeks, and that the atmosphere is very dry. In such a case plants lose water by evaporation rapidly, and immediate and serious damage ensues.

But if, while no rain falls, the atmosphere all the time is humid, evaporation will take place slowly and plants will suffer but little, if at all. The loss of water by evaporation from the leaves, when the atmosphere is humid, is so small that it is supplied, or nearly supplied, by the water constantly introduced by the roots, and hence the drought may be much protracted before inflicting serious detriment on growing vegetation. A drought then of a given length and with a certain temperature may be disastrous. In another year and at the same season, another drought equally long, and accompanied by the same temperature, may occur and do but little damage. In the former case the atmosphere is dry, and evaporation is rapid; in the latter the atmosphere is humid and evaporation is slow.

Have we any remedy against droughts?

To no inconsiderable extent we have, and that remedy is deep plowing.

1. Deeply plowed lands receive, when rains are abundant, into their substance all or nearly all the water that falls; none or little runs off from the surface. Such lands have therefore a larger storehouse of water, from which plants may draw their supplies—crops will stand a drought better for this reason. But the farther the water sinks into the substance of the soil, the smaller is the amount which the hot sun of summer will evaporate. Twelve inches beneath the surface, the soil is many degrees cooler in summer than the surface, and hence if the soil be once saturated to that depth, much less water is dissipated and lost by solar heat. Deeply plowed lands, therefore, not only receive into their substance more water, when rains are copious, but hold this water with greater grip and tenacity.

2. A deeply pulverized soil is permeable by the atmosphere, and the atmosphere, how dry soever, always contains some aqueous vapor. In a perfectly dry atmosphere our bodies would shrivel in a very few hours into mummies; all plants would wilt and die in a day. When the atmosphere can descend deeply into the soil, the cool soil deprives the aqueous vapor of heat, and so converts into water and deposits it just where it is most needed, about the rootlets of plants. In other words, in deeply plowed lands dew is being deposited in varying quantities all the time about the roots. Here is another reason why crops stand droughts better in deeply plowed lands.

3. Water is always rising from below by the capillarity of the soil, but it rises slowly through a hard and compact soil—with ease through a deeply pulverized soil. Hence the more deeply the soil is plowed, the larger will be the amount of water drawn up from below by capillary attraction.

Can philosophy draw comfort from a drought? When the fields are dry and parched, when the water courses are falling, and our domestic animals are pinched both for food and water, and the farmers' hopes are blasted—are there no compensating advantages? We think there are, and we give them for the comfort of the despairing and despondent. During a drought the soil is collecting its forces and recuperating its energies for better work in the ensuing season. Let us see.

If from a damp cellar we take a cube of cut sugar and touch a point to water, the water will strike slowly through the mass of sugar. But if we take a cube of cut sugar made perfectly dry by exposure to the hot sun, and touch it to water, the water in a moment flashes through the lump. The difference with which the two lumps receive water is striking and obvious. The dry lump in a tenth of the time will receive ten times as much water into its substance as the moist lump. It is just so with the earth—the dry lump of sugar represents the earth in drought; the drier the soil, the stronger is the tendency of water to rise from below to the surface, where it is evaporated. But water never comes to the surface simply as

water; it must come charged with all the soluble material which it has encountered in its ascent to the surface; it brings with it the nitrates, the sulphates, the alkaline salts and compounds, which have been exposed far below to its solvent action. When a solid is dissolved in water, it is no longer solid, but is as liquid as water, and must go wherever the water goes. It can part company with the water only at or near the surface, where the water changes its form and becomes vapor. But these salts lately dissolved in water become solid again when the water is lost by evaporation. The more severe and protracted the drought, the greater the depth from which the water will rise, and hence the greater its opportunity of meeting and dissolving solids and bringing them in solution to the surface, where they are deposited for the benefit of the ensuing crop. During a drought then, that mightiest power in the universe, that exhaustless source of all power, the great sun, is drawing up from depths inaccessible to the spade and the plow, the soluble matter of the earth, and putting it where it is most useful to the farmer, in the surface soil. This water as it comes up brings what the farmer needs, and only what he needs. It brings up only soluble matter, and it is only soluble matter in the soil that can feed the growing plant. The substances that the plant derives from the soil are solids ordinarily; but they did not get into the plant as solids—all come up into the vegetable circulation in solution.

Again, no mechanical reduction could put this material, brought up by water, in so comminuted a condition. It was lately dissolved, more finely divided than could be effected by the boasted machinery of our day. When the water leaves it, it is therefore in the best possible condition for solution again. It is fully and freely available in consequence of its excessive comminution, far more so than if the same amount of the same fertilizing material had been ground and bolted by the most perfect machinery at our command.

A year of hard drought is sure to be followed, if the seasons be moderately favorable, by a year of plenty. The crop gets the advantage of all the soluble material drawn up and deposited near the surface during the drought of the preceding year.

## Green Manuring.

By our Paris Correspondent.

The summer has been very warm and dry, but on the whole cannot be described as drought; and this leads me to the subject of green manuring, which is steadily making way in the warm zones of France, and on light soils thus presenting all the conditions of success. A plant which borrows from the soil to grow, repays, when plowed in, capital and interest in dying and decomposing on the spot. This is the reason why lands are laid down in grass to grow rich. The organic manure that we bury in the soil contains soluble and insoluble matters, the latter predominating. The first can serve to immediately feed the plant and be assimilated but for the second, they must

undergo fermentation to dissolve their parts or elements, and so give place to the production of new soluble compounds and gases. No food can reach the plant except in a state of extreme division, as the absorbing pores of the little roots are so delicately fine as to take up only liquids or gases.

It is under the triple influence of heat, air and humidity, that the decomposition of organic matter takes place in the soil. Green or vegetable are evidently cold manures. Their action is slow; their decomposition difficult; they contain too small a quantity of saline matters, or saline matters of an insoluble character; or they may be of a too aqueous nature. The character of the soil has a good deal to do with respect to the action of vegetable manures. In sandy soils the decomposition is more rapid, because the air and the agents of decay have freer access, while in the case of clays, decomposition proceeds more slowly, as their tenacity excludes air and heat. The humus in a clay soil is hastened in its decay by tillage, which opens it to the influences of the atmosphere. For similar reason if a sandy soil be tilled too frequently, the manures become rapidly soluble and volatilize in the air before the plant can profitably utilize them.

The plowing down of green crops before arriving at maturity is perhaps the earliest form of manuring land, and may be also the last. It is a precious auxiliary in localities where roads do not exist for carting farm-yard manure, or are impracticable as on mountain slopes. Rape, aftermath, lupines, buckwheat, rye, beans and turnips are the plants chiefly employed in green manuring. The Germans, and they are right, patronize too, a mixture, as turnips and spurrey. The more rapidly such plants grow and develop plenty of leaves the better. Before being plowed in they are rolled or mown. When in flower is the best time to utilize such plants; they are richer too in alkalis, as Dr. Saxe points out, that is the period selected by manufacturers of vegetable ashes for cutting. In Belgium, the weeds of the canals are cut in spring, and carted to land prepared for potatoes; drills are open four inches deep, the seed dropped, and the green weeds spread over it, the whole being covered with the hoe. This manuring does not tell on any subsequent crops.

In Bretagne and the northwest of France, rushes and heather are employed; these are generally strewn first on a road, to be bruised by the traffic. In the Upper Pyrenees, lupine is sown in autumn and in May, when in flower, is plowed in; this forms an excellent preparation for Maize. In Tarn et Garonne, Sainfoin is sown in the vineyards and plowed down; on light soils vetches and buckwheat are in favor, and seem to be preferred of late on the calcareous lands of Champagne. The Prussian farmers prefer yellow lupine; the Belgians lean to spurrey, and adopt the excellent plan of spreading a little farm-yard manure, and covering both simultaneously. In the Luxembourg, the slopes of Erzée have been made arable by green manuring five years in succession.



At best, plowing down green plants can be only half manuring. The plan possesses the undoubted advantage of maintaining humidity in the soil, and when the latter is of a calcareous, sandy, granite or schistose character, such is not to be overlooked. Green manuring never affects the flavor of products, nor removes anything from their delicacy.

#### How to Prepare Stalk Ground for Wheat.

By THE DEER CREEK FARMERS' CLUB.

Messrs. Wm. Webster, R. John Rogers and Wm. Munnikhuyzen were appointed to inspect Mr. Moore's farm and report to the club, but were unable to make the inspection, in consequence of the rain. They were familiar with the farm, however, and reported at once. Mr. Webster said that the farm looked well and everything about it was done in a farmer-like way. If he had a friend who wished his boy to learn farming, he would recommend him to send the boy to Mr. Moore's if he could. Mr. Rogers said Mr. Moore's might justly be termed a progressive farmer, one who improves as constantly and rapidly as any farmer we have. He has a fine field of corn. His wheat, which yielded 30 bushels to the acre, Mr. Moore regarded as a failure. His cattle are well advanced for cattle which have not been stabled or grained. He has a small but fine flock of sheep and his Essex hogs are very nice. Taking the farm all over there are as few foul fence corners on it as on any farm he knew of. Mr. Moore had done more to improve the roads than any farmer in the neighborhood. Mr. Munnikhuyzen said there was really nothing to criticize.

Mr. Lochary remarked that Mr. Moore had an eye to comfort as well as profit in farming.

#### The question selected for discussion was: HOW TO PREPARE STALK-GROUND FOR WHEAT.

And to our friend of the *Alps* we are indebted for the following report:

Mr. Moore said that putting stalk-ground in wheat was comparatively a new thing. Only during the last 30 years have farmers thought of doing it. His success with stalk-ground wheat has been all the way from 3 to 40 bushels to the acre, and he thought a good deal was yet to be learned on the subject. The first thing to do is to have the corn ground clean of weeds and grass, by keeping the corn thoroughly worked. The mode of shocking the corn is also important. Most farmers occupy three rows for their shocks when two will do, and space be saved for the wheat.—His mode of shocking is to take a row of corn instead of a middle space for the centre of the shock. Nine rows on each side are cut and carried to the centre row, the braces being made by tying the corn from each of the rows adjoining the centre one. Thus only two spaces are occupied by the shocks. When the corn is shocked between the rows, as is usually done, three spaces are occupied.

It is a question whether it is better to plow the ground or not. Some of the best farmers always plow. Mr. Moore's instance Mr. Hosea Barnes, who plows stalk ground for wheat and has better success, perhaps, than any farmer in Harford county. Much depends, probably, on the kind of soil, whether heavy or light. A light soil might give better results by merely cultivating it, and a heavy soil by plowing. His experience was that he had the best wheat where he cultivated the ground, but he was not satisfied that it is the best way. He had come to the conclusion that where stalk-ground is cultivated for wheat the early part of October is the best time to sow. The land should be stirred as soon as the corn is off, to get rid of any grass that may be there, and then stirred again before seeding. He regarded Fultz wheat as the best for stalk-ground and sows 1½ bushels to the acre.

Wm. D. Lee said his plan was to cultivate stalk-ground and drill the wheat in. It is cheaper than plowing. On white-oak soil plowing might be better than cultivating. Fultz wheat having failed, 4 or 5 years ago, he has since sowed red wheat.

Thos. A. Hays said that last year he sowed stalk-ground wheat in September, on heavy soil. The most of it was plowed, but part of it was put in with a cultivator. It was all planted at the same time. The result was that he had half as much more wheat where the ground was plowed. He would plow it, roll with a heavy roller and drill. It is a mistake to harrow. It is important to work the ground thoroughly when wheat is put in with a cultivator. It is convenient to work over the corn stalks.

Robert E. Morgan said he did not sow much corn-ground wheat. One year he ran a drill over a small piece, sowing 2 pecks of seed and 300 lbs. of phosphate to the acre. Then he went over it again, drilling the same quantity of seed and phosphate. The ground had no previous preparation. It was the best wheat he ever raised. If ground is hard and full of weeds it is better to plow it.

R. Harris Archer said that the land on which he was reared would do better by cultivating stalk-ground for wheat. It is also an incentive to keep the corn well worked and clean. Even if pretty dirty it is better to work it thoroughly with a cultivator than to plow it. He cuts the stalks ten inches high and does not disturb them until the following spring. Then a roller is run over them the same way as it is intended to run the reaper and horse rake. The stalks do not then interfere with cutting and are not raked up with the wheat. He did not think anything is lost by shocking the corn over three instead of two rows. It gives more ground for oats which are handy to have. He cuts 18 rows together, leaving 15 for wheat. It can then be drilled without any loss of ground. Grass seed is better on plowed ground, and if the field is intended for grass it should be plowed the next year, leveled down, and sowed again in wheat and grass.

Dr. W. W. Hopkins said he was not much encouraged by his limited experience in putting stalk-ground in wheat. The first time he plowed and had an indifferent crop. The next time he shovel-plowed the ground, drilled in the wheat and again had an indifferent crop. He sowed the middle of October.

Wm. Munnikhuyzen's experience was like Mr. Archer's. He had tried both ways and decidedly preferred cultivating, even if the land is a little filthy. Heavy soil is likely to run together and pack when plowed, and on light soil cultivating is decidedly best. Stalk-ground wheat is the cheapest that can be raised. He seldom sows stalk-ground in grass, but plows it the following fall. He had seen but little difference between late and early sowing on stalk-ground. Stir it well, let it lay and stir it again before sowing.—When wheat was cradled he rolled the stalks the reverse way the cradle went, but where a reaper is used the stalks should lie with the course of the reaper. When stalk-ground wheat is plowed it should never be harrowed, but should be heavily rolled and drilled. The plowman should be careful to take the whole row of stalks and avoid crossing the rows.

James Lee always cultivates corn-ground and drills in the wheat, sowing his entire crop in September. The corn stalks are broken in winter. He uses a binder and therefore does not horse-rake. Last year his early sowed wheat was the best. A week ago he would have said Fultz wheat was the best, but he had threshed out some Russian wheat which turned out well. This year he will sow 15 acres out of 85 or 90 in Russian and the rest in Fultz. He had seen little difference in the yield from stalk-ground as compared with fallow-ground wheat.

George Wilson thought farmers made a

mistake in putting in stalk-ground wheat by not working the ground deep enough. He preferred cultivating to plowing.

Bennett H. Barnes has tried both plans and found he could raise more wheat by plowing than by cultivating stalk-ground for wheat. He rolls the stalks down before plowing, and applies salt and kainit to the plowed ground; then rolls and drills. His corn ground is generally covered with manure in the spring and turned down, but had gotten the same results from fields too far from the barn to be manured in the spring. The best time to sow stalk-ground is from the 10th to the 13th of October. Has tried the Russian, the Rice and the Fultz wheat. The Fultz did best, the Rice being the poorest. The Russian stood better than the Fultz and is later. His average yield for the last 6 or 7 years has been 35 bushels. He uses pure bone.

Wm. Webster believed in the thorough cultivation of any crop if we expect success. There is only one redeeming feature in cultivating instead of plowing stalk-ground for wheat, which is, that it can be put in more rapidly and easily. He did not think the experience of two years would decide anything for or against a mode of farming, because in not two years are the conditions of climate, &c., precisely similar. He could not see how so much could be raised by cultivating as by plowing stalk-ground, because in cultivating you lose the rows where the corn stood. Besides, every time a drill tooth strikes a corn stalk, fertilizers and seed are both wasted, and the wheat can not be cleanly saved. If the field is mowed afterwards it can not be done with much satisfaction. The stalks should be rolled down, the ground plowed with a light two horse plow, rolled but not harrowed, and then drilled. Mr. Woolsey says he has better results where the ground is plowed.

Mr. Archer said some lands must be packed, to which Mr. Webster replied that rolling would pack the land sufficiently. The wheat crop requires more tillage before sowing than any other crop raised. You can raise more wheat by plowing than by cultivating, and it can be put in without extra team. Besides soil will wash less when plowed than when cultivated. Wheat that will ripen by the 1st of July is the only kind that can be relied on in Harford. The Fultz had proved to be the best.

R. John Rogers had tried both cultivating and plowing stalk-ground, and had come to the conclusion that plowing is the better plan, although wheat will sometimes grow under any circumstances. He did not think plowing for wheat involved a great amount of extra labor as compared with cultivating. His plan is to cut the corn stalks at the ordinary height, while green, with a sharp hoe. Then there is nothing in the way of plowing thoroughly. In plowing every corn row must be turned down. The ground is then rolled and harrowed. He would drill no grain without first harrowing the ground. The roots of the corn he has found, will not be pulled up by the drill. If the stalks are left on the roots they can not be turned down flat, and you can not harrow the ground. By his plan there are no stalks in the way when the wheat is cut. No large yield of late wheat would induce him to sow it, the risk of failure being too great.

John B. Wyson said on his land plowing is best. He rolls the stalks down, plows and sometimes harrows. If the ground is properly plowed and clean harrowing is not necessary. When he intends to seed corn ground he cuts the stalks close to the ground. If a coat of manure has been turned down for the corn it is of decided advantage to plow the land for wheat in order to bring the manure to the surface. When Fultz wheat appeared to deteriorate, a few years ago, he began to sow Keyes' Prolific, and has continued to do so, but thought he would go back to the Fultz.

Col. Robert S. Rodgers said there seemed to be a difference of opinion on the subject, but the weight of the argument was in favor of plowing the land, if it is heavy, and treating it in the same way as fallow land. The great object is to secure a crop of grass the next season, which is difficult to do when the ground is left rough.—Fultz is the variety generally sowed in his neighborhood.

S. M. Lee preferred not to plow corn ground for wheat, but would cultivate it and get it in fair order. He was satisfied that plan is best on chocolate colored or gray stone light land. Some white clay land might need plowing. He had occasionally seen good results from plowing, but 9 out of 10 times a better crop is obtained by cultivating. He uses a heavy four horse drag, which will loosen the land sufficiently to drill it. There is no difficulty in setting the land in grass, as it can be pastured if left too rough to mow. He had seldom failed to get the land sufficiently level for mowing. He sets his mower higher than most people do, as he thought cutting it too closely injured the grass. He thought the kind of wheat sowed on corn ground need not be different from that ordinarily used on fallow ground. He drills in 1½ bushels or sows 2 bushels broadcast. He seldom fails to get a set of clover on stalk ground, when cultivated.—Would leave it two years and then turn under a crop of clover.

Edward P. Moore's preferred cultivating. On 8 acres of tomato ground, one-half was plowed and prepared well, the other being cultivated and the wheat drilled in roughly. The latter produced about 5 bushels more wheat to the acre.—Both were planted late, the cultivated portion later than the other. To raise wheat the ground ought to be thoroughly cultivated.

S. A. Williams was in favor of stalk-ground wheat, not so much from pecuniary considerations, as because it formed part of a system of farming mapped out for him when he undertook the management of his father's farm, under which the farm had improved. Part of this system is to put corn-ground every year in wheat, applying bone and sowing clover alone. The year afterwards the clover is cut, the second crop being allowed to grow up, and is plowed down for wheat. The farm speaks for itself as to the benefit of that system. So far as the method of preparing the ground, he would have said, by cultivation, but he must confess that his views were shaken by the results Messrs. Barnes and Rogers had achieved by plowing. He was in favor of Fultz wheat, and usually has two-thirds as much wheat from corn as from fallow ground. He had succeeded in getting a set of clover every year in the last six except one, when it was partially successful.

Harry Wilson also preferred cultivating the ground thoroughly and drilling it. You will ordinarily succeed in getting a set of grass with stalk-ground wheat, but he did not advise that method, and plows stubble for that purpose. Generally sows red wheat on stalk-ground, as it will stand later sowing than Fultz. On fallow ground he sows Fultz.

Thomas Lochary said he worked his corn until the beginning of harvest. After harvest he cleans out the weeds thoroughly with hoes. Has tried several times plowing part of the field and cultivating the other, and could see no difference in the wheat. He sows clover on the corn-ground wheat and mows it two years. If plowed it should be the way the corn rows run. The ground should be rolled in the spring before it gets too hard.

Adjourned to meet at Mr. James Lee's, October 4th. Subject: "Can land be brought to the highest state of fertility without the use of barn yard manure?"

WHEAT goes lower and lower, having on the 13th reached the minimum price.



## Seeding Wheat.

John M. Stahl, in the *Farm and Garden* gives his views as follows:

I believe the foremost advantage of drilling wheat is the ridged condition of the ground. Certain it is that it was the chief advantage in the early days of drills, for then there were no perfected force-feeds, and the hoes were comparatively rude, and as a result the grain was not distributed more evenly or covered more uniformly than if broadcasted. Leaving the ground ridged is no mean aid to the crops. The only protection which the wheat has during the winter is the snow. It would be an ample protection were it a continuous one. But snow does not lie throughout the winter, and we must make the most of what we have. The winds blow the snow off from the wheat. We feel this most in the prairie States; where the wind soon drifts the snow on the treeless, level land, unless the snow should be very wet. On the hilly lands of other States, hill crest and sides are apt to be swept bare. Here we see the advantage of the ridges left by the drill. In the little hollows left between, the snow lies securely upon the wheat.

The point then is to make these ridges as effective as possible. As the winter winds prevail mostly from the north, the ridges should not run north and south, but east and west. Then the wind will sweep across the ridges; otherwise it will sweep along them and catch up the snow in the hollows.

The ridges should also be made as high and as enduring as possible. The way to accomplish this is to have the ground fine and solid; and it is in just such a seed-bed as this that wheat delights. Everything is gained and nothing lost by plowing the ground early, and then keeping the harrow and roller at work until every clod is reduced to a powder, and the fine particles are forced closely together. The more opposition the ground offers to the hoes the higher will they throw it into ridges, if fine; and the finer it is the more uniform the ridges will be, and the sooner will they become solid.

When we consider the importance of the ridges we perceive that it is very injudicious to roll the ground after the wheat has been drilled. This levels down the ridges, and by forcing the earth down into the hollows, covers the grain too deep. I have never known this to be done that it did not result in a plain injury to the crops. Yet I often see it recommended by agricultural writers; I think they must have been theoretical men, who never stopped to think what the result of rolling after drilling must be. I firmly believe in running the roller just ahead of the drill, and practice what I believe, in this case at least; but I would never allow the roller to follow the drill.

Leaving the ground ridged is not the only advantage drilling now has over broadcasting. With the force-feed arrangements, as now improved, the majority of the drills now distribute the grain much more uniformly than can be done by hand. If the ground is at all rough, lumpy, and uneven, it is impossible to broadcast the seed evenly. Though it falls as it should, that striking against clods and ridges will fall into the depressions. Then very few, if any men, can throw grain in such a manner that it will fall evenly upon the ground; and if there is a breeze blowing the grain will be distributed more unevenly. It is scarcely possible to place grain more evenly than it is done by a good force-feed drill.

The drill will cover the seed at a more uniform depth than will broadcasting, no matter how often the ground is harrowed or brushed after the grain has been broadcasted upon it, some seed will remain on the surface, while the balance will be covered at all depths not exceeding, say, six inches. That left upon the surface, will not, of course,

germinate; and not a little will be covered so deep that the plant never will reach the surface, while many of the plants that do, will be so weakened by their long journey that they will be crowded down by their more fortunate neighbors. Hence seed is saved by drilling. When broadcasted, more seed must be used per acre than when drilled. On properly prepared ground, a drill will cover the grain very uniformly. The hoes will run at very nearly the same depth, and nearly the same amount of dirt will fall back upon each grain of seed. Herein we see the advantage of a properly prepared seed-bed. In fact, it is apparent in every operation of seeding. When the ground is fitted rightly, the seed can be put in the ground in much better shape than where the ground is rough.

I cannot see the advantages of clods on ground where the wheat is drilled. Cloddy ground spoils the ridges and the uniform covering of the seed. Where wheat is broadcasted, I believe ground slightly cloddy is the best, for snow will be held in the depressions between the clods (just where the wheat will fall), and as the clods are mellowed down by the frost during the winter, the disintegrated earth will fall upon the root of the wheat which the frost is continually heaving above ground. But drill ridges accomplish both these advantages of the clods, and better.

So far as I know, the hoes of all wheat drills are made eight inches apart. I believe larger hoes, ten inches, or even a foot apart, would be better, and nearly every farmer to whom I have mentioned the matter has agreed with me. Larger hoes placed farther apart would throw up better and more enduring ridges, and the sun could better penetrate among the wheat.

I have frequently sowed wheat on ground so stumpy that it was impossible to drill it. Such ground I have ridged with diamond corn plows. The ground is thus plowed in "lands." In the middle of the "land" two furrows are made at the start, throwing the dirt out, or in opposite directions. The next furrows are run in the same way, about six inches from the first. In this way the work is continued, constantly working towards the outside of the land. Plows cutting six or seven inches should be used. These will leave furrows four or five inches wide, and a high ridge six inches wide between them. The wheat is sown broadcast on these ridges, and covered with a light brush. This is almost equivalent to drilling. If the ground is properly prepared, and care taken in making the furrows, the furrows will be of the same depth; and as the grain falls or bounces into the furrows, it will be covered uniformly, while fair ridges will be left after covering, to hold the snow.

Broadcasting is a poor way to sow wheat on our Western prairies, where the land is level, there are no protecting timber belts, the winds are strong, and the snowfall is never great. It answers better in the eastern and northeastern States; but even in those I consider drilling a much better way of seeding wheat.

We do not pay that attention to the selection of seed that we should. Some of my neighbors are very sure that wheat turns to cheat, but it has never done so for me, for I never sow cheat; and having never raised any, there is none in the ground to germinate when conditions are favorable. Cheat is a much more hardy plant than wheat, and the seed has greater vitality; hence a seed rarely fails to germinate or a plant to grow, stool, and mature, and as a result cheat will gain very fast upon wheat. He who sows cheat, can understand what it is to sow the wind and reap the whirlwind. This is equally true of rye. The seed of rye has more vitality, and the plant more vigor than of wheat. Almost every seed of rye is sure to mature a good stool. When we consider that if wheat were, without the loss of a

grain, to stool and head moderately well, it would increase six hundred fold, and that where we sowed a bushel, we would reap six hundred, we can understand how cheat and rye, which do stool and head moderately well, can gain so fast upon the wheat. "Whatever a man soweth, that shall he reap," and nothing more; sow pure wheat, and that alone.

Sowing shrunken seed is shortsighted policy, though often done. Shrunken grains are not so good for seed as plump grains. The substance of the grain is a wise provision of nature to nourish the plant until it can expand its foliage above ground, until which time it cannot utilize the food in the soil. A shrunken grain may be consumed before the plant reaches above ground, and the plant must die.

## Farmers' Assembly of Virginia.

This Assembly met in Charlottesville on August 14th, there being present a large number of gentlemen engaged in the agricultural pursuits. A number of prominent gentlemen were present. It was, says the *Jeffersonian*, to which we are indebted for our report, a body of fine looking, intelligent gentlemen, whose appearance as well as their dignified, orderly and intelligent deliberations would have elicited praise and favorable comment in any section, place or community. None could have attended the meetings of this organization without being pleased and instructed as well as being favorably impressed with the farming gentry of our State.

The meeting was called to order at 12.15 P. M. by Mr. W. W. Minor.

On motion of Dr. J. R. Page, the chair appointed a committee composed of the following gentlemen to select officers for the Assembly: O. Reiersen, J. R. Wingfield, Dr. J. R. Page, L. N. Macon, Capt. Eugene Davis, R. B. Moon, W. F. Coleman, W. L. Heuser, Prince Edward; W. L. Buddeke, Orange; G. W. Clarke, Scottsville; H. B. Nicholas, Buckingham; Edward Ruffin, Hanover; Fenton Norman, Hanover; R. A. Fennell, Warren county.

The committee presented the following report:

President, Col. Robert Beverly.

First Vice-President, Randolph Harrison.

Second Vice-President, W. G. Merrick.

Third Vice-President, W. F. Coleman.

Secretary, H. M. Magruder.

Assistant Secretary, James Wearmouth.

The President on taking the chair delivered a short address, stating some of the objects of the organization, the work to be done by it and adverted to the fact that they represented 76 per cent. of the population of Virginia, and claimed that the farming interests should be more properly represented in the councils of the nation; thanking the body for the honor they had conferred on him, announced the meeting ready for business.

Dr. J. R. Page moved the appointment of a committee of three to suggest the order of business. The chair appointed Dr. J. R. Page, Major R. V. Gaines and Hon. B. J. Barbour.

The committee reported that the articles to be read had not all been received, but that they would be called up, read and discussed, after Mr. Barbour, who would deliver the address of welcome, had concluded his remarks; that the order of business be as follows: meet daily at 10 o'clock A. M., adjourn 2.30 P. M., to meet at 4 P. M., and adjourn at 6.30 P. M.

## AFTERNOON SESSION.

At half-past four the President introduced the Hon. B. J. Barbour, who delivered the address of welcome in his usual eloquent and brilliant style.

Mr. Merrick offered the following resolution:

*Resolved*, That a committee be appointed to draw up resolutions for the purpose of

showing the object of this meeting, whether it is to be a permanent organization or not, and who is to direct it. Which resolution was referred to the following committee: John E. Massey, George W. Clarke, Col. Rand Harrison, Dr. John R. Page and John M. Johnson.

Dr. John R. Page read a carefully prepared essay on wheat culture. By permission, Hon. B. J. Barbour moved that a temporary treasurer be appointed to receive from the members such sums as they may feel disposed to contribute towards the expenses of the meeting, which motion was carried, and Captain J. R. Bryan was appointed to this office.

Mr. Merrick opened the discussion of the subject of Dr. Page's essay. He maintained that the farmers of our section should raise wheat only to get grass. The discussion was continued by Messrs. W. L. Heuser, H. M. Magruder and others. Dr. Page gave the results of several experiments on wheat. Col. Beverly gave his experience of floats and South Carolina phosphate in the experiments he had made, and gave as the result that he did not consider floats and potash worth buying. The discussion was closed by Mr. G. W. Clarke and Major Gaines, of Prince Edward. On motion of Mr. Barbour the meeting adjourned until 10 o'clock Friday morning.

## FORENOON SESSION OF 15TH.

The Assembly was called to order by the President at the hour to which the Assembly adjourned. The minutes were read and approved. Mr. Barbour called the attention of the gentlemen present to the fact that the Treasurer was ready to receive their subscriptions. Mr. Preston moved that the remarks of each member in discussing the papers read should be limited to five minutes, which was adopted.

The next business in order being the reading of an essay on drainage by Mr. Joseph Wilmer, that gentleman was called upon, but not responding, the next essay in order, "Science in Agriculture," by Professor Scott, of Blacksburg, was read. This essay was carefully prepared, and listened to with marked attention, and its merit was attested by the enthusiastic applause it received. It was moved by Mr. B. J. Barbour that the thanks of the meeting be returned to Prof. Scott for his able and interesting essay, which was seconded appropriately by Col. Harrison, who moved as an amendment, also, that a copy be requested for publication, either in the agricultural papers or in pamphlet form. Col. R. T. W. Duke moved that all of the agricultural colleges be requested by the Assembly to at once establish agricultural stations at their colleges. Professor Scott objected on the ground that the colleges have not the pecuniary means, that they are doing now all that their means will allow in the way of experiments in matters pertaining to agriculture. He said that he would support a resolution from which the funds could be obtained.

Colonel Randolph Harrison, in the course of a few remarks upon this subject, said the Department of Agriculture would get a seed testing apparatus. Mr. Barbour stated that on a visit to Massachusetts, he learned that there was a plan by which fraud seemed to be eliminated from the fertilizer trade. The Commissioner has power to go anywhere and draw samples and analyze them and throw out of the market any found worthless. Mr. Harrison, in reply, made the statement that the Commissioner has the same power here, but that it is hard to say what is worthless, that he publishes, analyzes and lets the farmers judge for themselves. Mr. J. R. Wingfield asked if the provisions of the North Carolina law was the same as those in effect here, that a farmer may draw samples and send to the Commissioner and have them analyzed, and if the appropriation is sufficient to cover the expense? Col. Harrison



stated in reply that there was just where our law was deficient; there was plenty of authority to analyze, but not enough money to pay the expenses. That he proposed to get a bill introduced to levy a tax to pay expenses of analysis, and the residue to accumulate so as to raise a fund to found an experimental station. Col. Harrison explained the object of the bill proposed by him. Mr. Barbour offered a substitute to Col. Duke's resolution, which being amended by Mr. J. R. Wingfield, passed, which is as follows:

**Resolved**, That a committee be appointed consisting of Hon. B. J. Barbour, Col. R. T. W. Duke and Mr. Julian Ruffin, to memorialize the present session of the Legislature looking to the passage of a bill amending a bill approved March 29, 1877, an Act to establish a Department of Agriculture, Mining, Manufacturing and Immigration.

At this point the order of business, on motion of Mr. Johnson, of Alexandria, was suspended, and the report from the Committee on Permanent Organization was received and adopted.

After considerable discussion and many conflicting propositions, it was moved by Hon. J. R. Wingfield that the Assembly, when it adjourns, should adjourn to meet in Richmond, Monday, the 28d of October, the second day of the Agricultural Society. Col. Beverly called Mr. Merrick to the chair and seconded the motion, with the hope that it be understood that it be auxiliary and under the auspices of the State Agricultural Society. Mr. Mayo, as Secretary of the State Agricultural Society, stated that he would see that a proper place was provided, and that proper care would be taken of all papers sent to him, and be laid before the Assembly, that notice should be put in the city papers, etc. Mr. Wingfield further moved that a committee be appointed to include Mr. W. G. Merrick on constitutions and by-laws. Dr. J. A. Reid requested that Mr. Ruffin be added, which was assented to. Major Gaines suggested that the committee print their report for circulation among the farmers, which was also carried. Mr. H. M. Magruder read an excellent essay on cattle. In testimony of the appreciation of it, on motion of Col. Harrison, a vote of thanks was tendered. Mr. Magruder by the Assembly. Messrs. Johnson, Honner, Dr. Reid, Col. Harrison and others took part in the discussion on this subject.

An essay on poultry by Mr. Buddike was presented by Mr. Barbour, received and ordered to be printed together with those that were actually read.

The president and directors of the Monticello Wine Company, having invited the Assembly to visit their cellar and sample the wines, on motion of Col. Duke it was resolved that the invitation be accepted, and the members (at least no small proportion of them) repaired to the cellar, where they made some practical experiments upon the wine and pronounced it fertile with good effects.

#### AFTERNOON SESSION.

At 4 o'clock P. M., the Assembly was called to order, and a "Report on Grape Culture," by Mr. W. W. Minor, was read and discussed by Mr. J. R. Bryan and others. Prof. Scott asked for information as to cost of bringing vineyards to bearing. Major R. F. Mason gave figures showing the cost of trellis at present prices to be about \$46.50 per acre, and was confident that the total cost to four years old when first crop should be gathered, at not exceeding \$80 per acre.

Mr. O. Reikerson called attention to detailed estimates of cost of planting and cultivation of an acre of different kinds of grapes in Report No. 4, Reports of Agricultural Commissioner (Dr. Pollard), giving such detailed estimates of cost of vines, cost of post, etc., so that each could make his own estimate of the cost in his own vicinity. The

speaker particularly cautioned those intending to enter upon grape culture not to allow the vines to bear too much the first bearing year, which must be prevented by close pruning. The vines must not be allowed to bear what they will. He also remarked upon the necessity of judgment and skill in pruning to spare the young or weak vines, to allow none to exhaust themselves by bearing too much in one year. Though the speaker exceeded his time he was requested to go on. His speech was full of practical information and interest to those not skilled in grape culture.

Mr. Porter was called on for his views. He stated that he had been growing grapes 15 years. In speaking of the different varieties, he said there was more demand for Concord wine than for Norton, though the latter is claimed as the best. He said that Concord is reported to be liable to disease, but the Norton has shown as much in some vineyards, and even more in others. After some further discussion the assembly adjourned.

#### SESSION OF 10TH AUGUST.

The assembly was called to order by W. W. Minor, in the absence of the President and Vice-President. On motion the reading of the minutes was dispensed with. Dr. J. R. Page handed in essays written by various gentlemen. As there remained no time to read them, on motion of Dr. J. R. Page they were ordered to be printed along with those that were read.

Col. Shield's offered the following resolutions, and supported them by some forcible remarks:

**Resolved**, That the resolution instructing the Secretary to communicate with the agricultural societies be amended so as to include the press of the State, and that reference be made to the proceedings of this body in relation to its future purposes, and that the farmers and all others interested in promoting the objects in view be urged to attend the meeting of the Assembly on the 28d of October next at Richmond.

These resolutions were unanimously passed.

Prof. Dunnington, of the University of Virginia, was called upon and read an able and interesting paper on composts. Inquiry being made about the action of gas-house lime as compared with air-slaked lime by Col. Duke, the Professor replied that putting dry unslaked lime at 100, then air-slaked is worth 60, and gas-house 45. Capt. J. R. Bryan enquired about the best method of saving the first and richest washings from barn yards, and letting the latter and less valuable pass off. On this point Mr. Dunnington referred him to various mechanical contrivances. Major Gaines inquired into the action of plaster. He replied that it acts on the surface far better than in the ground, that its action is mainly in fixing the ammonia of the air, which is to be done principally on the surface, by small but repeated applications. It was moved by Dr. Page that Prof. Dunnington be requested to write out for publication, his very interesting and instructive lecture on composts, which was seconded by Major Gaines, and unanimously carried.

Dr. J. R. Page offered a series of resolutions, requesting the State Agricultural Society to establish Farmers' Assemblies in all the different parts of the State, and urging the importance of the establishment of farmers' clubs in every community, and that there should be a unity and concert of action; and also the appointment of delegates to the National Agricultural Congress should be appointed from different parts of the State. We regret we cannot give these resolutions in full. They were carried.

The following resolutions on motion of Major Gaines, were carried without dissent. They were:

**Resolved**, That in the opinion of this Assembly the establishment of Agricultural experiment stations for testing seeds, analyzing fertilizers, making experiments with fertilizers adapted to each crop and section of the State, etc., is essential to the healthful and successful development of the agricultural interest of the State.

2. That we would earnestly and respectfully recommend this subject to the attention of the Legislature now in session, and would ask the appropriation of a sum sufficient to establish at least one station in each geological division of the State.

3. We would call upon the Virginia State Agricultural Society and other Agricultural societies in this State to co-operate with us in carrying out the object of these resolutions.

4. That the President of this Assembly appoint a Committee of nine, whose duty it shall be to co-operate with the President of the National Agricultural Congress in securing an appropriation from the Congress of the United States sufficient to foster and develop agriculture by establishing experiment stations in connection with each Agricultural and Mechanical College established by act of Congress, 1863, as well as by the prompt and general distribution of weather signals through the agency of the railroads and telegraph lines now in existence.

Maj. Gaines moved that the thanks of the farmers of this State be tendered to Dr. J. R. Page for the successful inauguration of this movement, which is full of promise of material benefit to the agricultural interest of the State, which was unanimously carried. The Assembly then adjourned.

#### True Value of Orchard Grass.

The merits of orchard grass, *dactylis glomerata*, as a farm crop, have been long known in this country, and repeated efforts have been made to popularize it among farmers, particularly among dairymen, but as yet the number who even know the grass at sight is not large, while probably not one farmer in ten has ever sowed a single field to it, and of those who have given it a trial not all have been so pleased with its habits as to continue it as a regular farm crop. That this grass is really a valuable variety, is evident from the fact that it is largely grown by farmers in some localities, and is esteemed very highly by those who have longest known it. That it has demerits is equally evident from the fact that it has been so slow in gaining popular favor. We have heard orchard grass condemned severely, and praised most highly, by candid men who have had more or less experience with it. We have ourselves grown it successfully for some twenty years past, and believe we are tolerably well acquainted with its habits and value as a farm crop. We have frequently given the readers of the FARMER the benefit of our experience in its cultivation, but inquiries concerning it are still received, and in reply to them we will again indicate to those who are interested in the matter what they may hope or expect from this grass.

Orchard grass will grow anywhere that timothy or clover will grow. It will hold in longer than timothy, but will rarely produce a single cutting equal to timothy when the latter is given a favorable opportunity. Orchard grass inclines to grow in tufts, a single plant sometimes covering over a large space, but it never spreads, like June grass or like quack grass, by underground stems. Grasses that grow in tufts, so far as we have observed, are frequently deficient in stem growth, but excel in the production of leaves below or around the stems. The chief value of orchard grass, taking the season through, is in its under growth of leaves, and those who look for the crop in its stems and heads are often disappointed. A farmer who aims to

obtain his hay crop at a single cutting, had better not sow orchard grass except in pasture land. Nor is this grass suited to the demands of those who grow hay for the city market. For such, the old standard varieties, timothy and red top, are to be preferred. Orchard grass should only be grown in mowing fields by those who would like to cut two or three crops per year on the same ground. Nor should its culture ever be attempted by those who cannot be ready to begin haying whenever their grass is ready to cut. Orchard grass, like June grass, red clover, and a few other varieties, is full three weeks earlier in ripening than red top and timothy, and unless harvested at the time it is at its best, soon becomes hard and innutritious like any other over ripe grass or straw. Orchard grass has one other demerit. It is a little tender the first year, if sown very late in autumn. Now to get its full value we must observe its habits and conform to its peculiarities. Red clover is one of our most valuable forage plants, but if we were to attempt to make it take the place of timothy and should give it precisely the same treatment, we would surely be disappointed.

Orchard grass is well adapted to grow in shady fields, and in orchards or forest-groves it may occupy comparatively dry land, but for open culture it will pay better on land so moist that continuous growth may be maintained from April to November. In the latitude of Central New England, the first crop will be ready to cut as early as the middle of June every year, in early seasons by the fifth to the tenth, and when the blossoms begin to fall it must be cut without delay. The second growth will start rapidly and will be entirely of leaves, which will lengthen at the rate of an inch per day for a month or more, when the crop should be cut. A third crop will have to be cut or pastured later in the fall, as there will be too much to leave on the ground over winter. Orchard grass will bear top dressing any time directly after removing a crop, and will pay well for the cost on any moist land. It should not however be sown on land that is too wet, or which is likely to be over-flowed or covered by ice in winter.

The sown crops of this grass make the best hay for cows in milk and for growing stock of any single variety we have ever grown. It is better, however, to sow orchard grass with blue grass and red clover. Blue grass or June grass, *poa pratensis*, will fill the spaces between the orchard grass tufts and help to make a complete sod, while the clover will help make a crop the first and second years before the others have reached full maturity. The thicker orchard grass is sown, the less its habit of growing in tufts will be noticed. We never sow less than two bushels per acre, and with it we have usually sown a bushel of blue grass, and six to eight pounds of red clover. If one is preparing to try orchard grass, the seed should be sown immediately if to be sown this fall, as it should have time to make a sod the first season. The first of September is as late as we would recommend sowing the seed in autumn, and the first or middle of August would be better in ordinary seasons. Clover could then be sown at the same time.

We consider it an advantage to have varieties of grass that will ripen at different seasons, so that haying will not come all at once. Dairymen who stall feed their cows, like to have good green feed to cut all the summer through. Nothing will meet their want equal to orchard grass if it is properly handled. One fourth of the mowing of any dairy farm may well be devoted to this grass.—N. E. Farmer.

CLOVER does best on land with sub-soil of red clay, the deeper the red clover the better, even verging into light brown. The shade is of no material benefit to either clover or orchard grass. The latter is sown in orchards and other shade not for protection, but because it will grow in spite of shade.—Southern Live Stock Journal.



## Live Stock and Dairy.

## Raising Calves.

Messrs. Editors American Farmer:

In your issue of August 1st, I notice the remarks on raising calves, but very little is said of the manner of raising them. I will give you my mode. Of course, I refer to the helpers. As soon as the calf is a day old, I take it off the cow, and give it the mother's milk for about a week; after that I mix hay tea and milk together, and put a little meal and hay where they can learn to pick at it, and they will soon learn. If in the winter, (which I think the best time), I give all hay tea, with no milk, but meal or hay. In the summer, I turn them out on grass and give the tea and meal about twice a day. I have never yet lost a calf from scours, or, in fact, from any complaint, for I think the hay tea corrects any tendency to scours. I have often given the tea and clabber with good results. I think the sooner the calf is taken from the mother, the easier they are weaned and will take care of themselves without any further trouble. I agree with the N. E. Farmer that it will pay to raise all the calves of good butter or milk stock. In two years, she will (or ought to) be fresh, and what they consume will hardly be missed; but the pile in the barn yard will be larger; and if she proves to be not worth keeping, she can be made fit for the shambles, and return a good sum for her keeping.

Baltimore Co., Md.

J. A. C.

## Preparing Sheep for Winter.

Every flock-master should be sure of the condition of his sheep at the commencement of cold weather. It is inexcusable neglect to allow breeding sheep to be thin at the beginning of winter. When sheep are thin at the cold season begins, they are likely to be thinner, if alive at the end. It is a hard struggle to improve the condition of thin sheep in winter, as they have to eat more food to keep warm than if they were in good condition.

If farmers think they are saving food by keeping thin flocks so sparsely that the warm season does not put them in good condition, then they greatly deceive themselves. Much less extra food, in warm weather, will put sheep in good condition than will be required to keep the thin sheep warm in winter. So it is a great economy to furnish the extra food in warm weather, rather than to be compelled to furnish more or lose his sheep in cold weather. Sheep always make the most of a pasture, and no animal makes much that comes after them.

And, if in September sheep are thin, it is quite evident that extra food is needed, and this should be given at once. It is safer to feed some cooling and strengthening, rather than fattening food. Wheat bran, fed in troughs, is a safe and good food, and to the thinnest sheep a little shelled corn may be mixed with the bran. But corn must be avoided in warm weather for sheep that are fleshy; and yet for those very thin the corn will be safe, and assist in putting them rapidly in condition.

This small amount of extra food fed to sheep in the fall to put them in such condition, as all breeding sheep should be in to go safely through the winter, should not be regretted as a loss, because as the sheep make the most out of the pasture, its deficiency must be made up in order to give the pasture its greatest value. It sometimes happens that only a small part of the flock remain thin, the pasture having been sufficient for the best feeders; in which case, the thin sheep should be separated from the rest and fed this extra food where they will not be molested. This reduces the amount of extra food required, and produces also a better result.

Those flocks that are intended to be fattened for the spring sale, or to be turned at the

best opportunity, should now have careful attention. The warm weather is the time to push them. The better their condition becomes in moderate fall weather, the less food will be required in the cold season.

But care must be taken not to overfeed those that are fat in the warm season, and in such cases, no corn should be given, but their condition simply be kept up by a little bran, even that given in great moderation, as any pushing of such is likely to develop febrile diseases, which are very dangerous.

Those that are becoming quite fat should be put upon a spare diet, with plenty of good water, or they should be sold if the market will warrant. This case of getting dangerously fat in the fall seldom occurs, but the opposite (too thin) is very apt to occur, and these are the cases that require wise pushing. But all feeding requires the expert eye of the feeder to determine the proper limits of the ration, for it had better be a little under than over the normal capacity of the animal. The season is favorable for the best progress, but great care should always be taken not to over-tax the digestive power of the stomach. The feeding ought to begin with bran as a light food, and gradually add a little corn. We should always advise linseed-oil meal to be kept on hand, and about one pound per week fed to each sheep. This will pay back all it costs, and will aid much in promoting the health of the fattening flock.—*National Live-Stock Journal*.

## Foot Rot in Sheep.

On visiting the farm of Mr. Horace A. Smith, of Adams' Mills, Muskingum county, Ohio, about the 20th of August, the first farm operation we were introduced to after our arrival, was an examination and treatment of a large flock of sheep for foot rot. There were between 100 and 200 in the flock, and among them a few that were lame, one or two so badly as to walk upon three legs. The sheep were confined in a series of small pens, separated by gates. In the operating pen was an oblong box made of inch boards, and large enough to hold a sheep lying flat upon his back. The head of the sheep was supported by a false bottom which lay with one end projecting over the narrow end of the box. A sheep being caught by the hind leg, was placed in the box, with the feet sticking up into the air, where they were handy to operate upon. Two men did the work, one for the forward, the other for the hind feet, and they made quick work of it too.

The sound feet needed nothing but a little paring of the hoofs with knives and a shortening of the toes with a pair of sharp pruning shears, the work being done after a rainy night when the shells of the hoof were soft and easily trimmed. The lame ones had their feet pared till all the diseased parts were removed, and then an application was made of spirits of turpentine followed by a coating of tar well worked in between the claws. When the job was finished, one of the men taking hold of the projecting end of the false bottom, which was nailed in solid, raised the sheep, box and all, to a perpendicular position, when the subject took to his legs and left the pen by one of the gates which was opened for his passage.

A few of the feet were in very bad condition, the shell of the hoof having grown out and doubled over the sole of the foot and preventing the natural wear of that part. In one case the foot underneath had become very foul and was filled with maggots, which were making havoc with the vital parts. The turpentine was applied to destroy these, and the tar to keep the parent fly from laying more eggs. Mr. Smith makes it a rule to examine all his sheep as often as he finds any of them going lame, and claims that the paring and application of turpentine and tar is all that is needed to keep the disease from spreading to the whole flock, as it might do

if neglected. We find in the books no mention of the maggot as a cause or accompaniment to foot rot, but found them by the dozen in some of the feet examined.

Foot rot is of two kinds, common foot rot and contagious foot rot, the latter being much more difficult to cure and requiring longer treatment. Mr. Stewart in his Manual gives the following mixture as a dressing to be used after paring and washing with carbolic soap and water:

Oxide of Copper, 1 lb. 0 oz.  
Arsenic, 1 lb. 0 oz.  
Acetic Acid, 1 lb. 0 oz.  
Honey, 1 lb. 0 oz.

To be applied by dipping tow or lint in the mixture, and binding it around the tender parts, especially between the digits.

Another remedy is an ointment made of finely powdered blue vitriol, one pound; verdigris, one half pound; linseed oil, one pint; and pine tar, one quart. This will dry on the foot and will not be as easily washed by the wet grass. In a recent number of the *American Agriculturist*, Dr. Thurber gives a method of treating sheep, which is quite popular in France, both for preventing the spread of foot rot and curing mild cases. Shallow tanks or trays are placed at the doors of the sheep barn, and the animals as they go out and in, bathe their feet in a liquid made by slaking quick lime in water. The tanks are ten feet long, and have slats nailed on the bottoms to prevent the sheep from slipping and falling all over into the caustic solution. The depth should be only enough to well cover the hoofs. Foot rot is much more common on damp soils, where the shell of the hoof grows faster than it wears off. Paring must always be attended to in such localities.—*N. E. Farmer*.

## The Small Breeds of Hogs.

Although the majority of the farmers are partial to the large breeds, there are some advantages in favor of small Yorkshires and Suffolks, not possessed by the Poland Chins or Chesters. Every one who raises stock must acknowledge that an animal which has ceased to grow, fattens more readily than one which is not matured. The tendency at the present day is to breed for small carcasses (except in the neighborhood of the large pork packing cities), as such meat is more in favor, and realizes higher price than larger carcasses, but unless the small hogs can be raised at a cost equivalent to the production of pork, the larger sizes will be preferred. Now if we consider that the small Yorkshire and Suffolk mature early, it at once becomes apparent that they are more easily fattened. While the large breeds require time to mature the food consumed must contribute to bone and tissue, though a proportion will also be devoted to fat, and in the meantime a hog of a smaller breed begins much earlier to convert nearly all its food into flesh. If we have a litter of pigs to farrow from a small breed, at the same time with a litter from a large breed, in proportion to cost of food, from April to December, the gain will be nearly the same, although the pigs of the larger breed may weigh more than the other, but the difference will not be very great. If the pigs are kept over to the second year, the larger breed will be much more profitable, but for the first year the profit will be the greatest from the smaller breed, and this may be verified by any farmer who will take the pains to keep an account of the expenses. The small breeds grow fast, fatten early, and are fit for the butcher long before the large breeds. The comparison is not made as to which will grow the faster, or which will make the larger hog, but which will yield the largest profit, the profit being that sum derived after deducting the cost, whether the pigs weigh one hundred pounds or three hundred. If the boars of the small breeds are used on large coarse sows the pigs will be hardier, for the pure breeds are bred too fine for general farm purposes, but the crosses are excellent, and always give satisfaction.—*Farm and Garden*.

## Farm Horses.

A writer in the *Rural New Yorker*, in speaking of the most profitable kind of horses to have on a farm, gives his views in this way: "If I were called upon to name the two requisites most necessary for a farmer to possess in addition to a good farm, I should say a good wife and a good team, and when a young farmer becomes possessed of these, he has made a good start on the road to success. While no industry on the farm pays better than raising good horses, none is more unprofitable than raising inferior ones. It costs but little more to raise a horse which when six years old will command a ready sale at \$400 and \$500, than one which can with difficulty be disposed of for \$100; or than it does to raise a heifer or a steer, which at maturity is worth \$50 or \$75. The best team for a farmer is one that will best answer all the purposes of the farm; plowing, hauling, taking the farmer and his family to town, or his boys and their sweethearts for a lively sleigh-ride, and in addition to all this, will give him a pair of colts every year, which will earn their keep from the time they are two years old until they are sold for \$800 or \$1000 at five or six. The team to do this is a pair of handsome bay mares, sixteen hands high, weighing 1,200 to 1,250 pounds each, with small bony heads, large nostrils, broad forehead, large bright eyes, small tapering ears, long necks nicely arched, deep as they spring from the shoulders and small at the throat-latch, long oblique shoulder blades, moderately high withers, short backs and deep but not overbroad chests—because a horse with a very wide breast, although usually of a good constitution and great strength, is seldom a graceful or rapid trotter, is apt to have a "padding gait," and if used for road work will generally give out in the fore leg from the extra strain put upon it by the weight of the broad chest. Our team also must have muscular thighs, large knees and other joints, short cannon (shin) bones, legs broad below the knees, and hocks with the sinews clearly defined; fetlocks free from long hair, long moderately oblique pasterns, rather small though not contracted feet; broad loins, wide smooth hips and long full tails. They must have plenty of nervous energy and good knee action; must be prompt free drivers, capable of trotting a mile in four minutes; be fast walkers and good hearty eaters; must not "intefere," and must carry their heads well up without checks when on the road. It will readily be seen that these mares are neither Clydesdales, Normans, Canadians, Arabians, thoroughbreds nor trotters, but they are a team which will pull the plow through two acres of land in a day; will pull a ton—yes, two if the roads are good—of produce to the village four miles off in less than an hour, and trot back with the empty wagon in half that time without distressing themselves or their driver. Should the farmer have a trip of twenty miles to make on business or pleasure, he can hitch them to his spring wagon, take his wife and children with him, and they need not be away from home more than three hours; or should he choose to go on horseback, he can mount one of the mares and enjoy a ride on a very fair saddle horse. A team of Clydesdales may pull a heavier load at a dead drag; Canadians will stand more exposure and poorer fare; Arabians are better saddle horses; thoroughbreds can outrun them; trotters, when hitched to a light buggy, can pass them on the road—but neither of these breeds combine anything like the desirable qualities for a farmer that the team which I describe possess, and when it becomes desirable to dispose of their produce, the colts of such mares will find a readier sale than those of any of the others, being exactly suited to the wants of the rich city gentlemen for his family carriage, for which he must have a strong, handsome, showy



team, and as such teams are always scarce, he must pay a good price for them; large dray horses usually bring remunerative prices, but few men will pay as much for a team to haul their bales of cotton or barrels of flour as they will for a team to draw their families in Central or Lincoln Park in winter, and at Newport and Long Branch in the summer, where each millionaire strives to outdo the others in the beauty and style of his carriage horses. It will be useless for the farmer to try to get such horses as these at a very low price; but when he has found them, never mind the price; an extra hundred dollars or so invested in such a span will pay better interest than in the savings bank. When the farmer has obtained his team of mares, let him look for a stallion of as nearly the same type as he can find. He must be full sixteen hands high, of good disposition, and have the bold high knee action which characterizes a fine carriage horse—for which rich buyers are willing to pay liberally. If this horse can trot in three minutes instead of four, so much the better.

#### Butter and Cheese Making.

A writer in the *Ohio Farmer*, makes the following condensed points on butter and cheese making, with some of which, however, some dairymen will disagree.

1. In making butter, good, sound, wholesome food is indispensable. To make a good article from poor material is as impossible in dairying as in any manufacturing industry.

2. Excessive acidity in cream before churning causes a partial separation of the butter fats, and the acid also develops glycerine from one of the oils composing these fats. Souring cream does not add to the quality of butter; it simply creates a stronger flavor in contrast to the delicate flavor of unsoured cream, which is the true flavor or aroma.

3. Natural vegetable acids do not harm milk, but the artificial acid of fermenting food introduces an element into the consumption that is not possible for nature to neutralize, and hence affects the milk. The amount of ferment may be small and do little injury, but if carried beyond a certain point will have a deleterious effect, which experiment, time and again, has demonstrated.

4. Butter should always be churned several degrees colder in summer than in winter. The reason is that the caseinous matter of milk more readily attaches itself to the butter globules in summer than in winter, and that this adhesion can best be prevented by a cooler temperature of cream when churning, is a fact.

5. Sudden changes in the color of butter, unless caused by sudden changes in food, say from oat and corn meal to bran of poor quality, or rye meal, is caused by churning too warm and loading the butter with casein. Soft and white butter are both due to one cause—too highly charged with the solid matter of butter-milk.

6. Butter is a very difficult article to keep, unless very low, uniform temperature can be secured. Where butter is needed for long keeping, the best way is to make in small and somewhat oblong rolls; wrap closely in well brine-washed muslin cloths, and immerse them in brine made from boiled water. These should be kept beneath the surface so that the air will not get to them. A small quantity can thus be had at any time.

7. Crocks of butter to be kept for several months should never be placed upon the cellar bottom. This causes two degrees of temperature in the crock, which will be at the expense of the quality of the butter near the top. The crocks will keep their contents far better if placed at least a foot from the cellar bottom, upon a bench, and a thick woolen cloth thrown over it.

8. Guess-work about cheese and butter making should never be tolerated. It is impossible to guess, with the finger, within eight or ten degrees of the actual temperature of a churning of cream; besides, it is always some trouble to wash the finger before testing the cream. Four or five degrees, even, make all the difference between good and poor butter.

9. Washing butter with brine has two effects. If the fine-grained butter is allowed to stand for some time in the brine the latter will, by the natural laws of gravity, cause the solid or cheesy matter in butter-milk to assume a lower strata and can thus be drawn out from under the butter. The added water has also an affinity for the sugar of milk, and takes it with it when drawn off. The brine also causes a slight contraction of the butter globules, which causes increased firmness.

10. It is just as likely that butter "comes" because the elements in the cream (other than butter fats) unite, as that it is the adhering of globules. If the fluid part of cream is absorbed, fine granulated butter is left as a result. Certain it is that the nearer the process of churning can be made to approach concussion, or falling and sudden arrest of motion, the more perfect the process of churning and the finer the grain of the butter. The introduction of any sort of apparatus which beats, rubs or grinds the cream should be avoided, for every butter globule destroyed, or broken, is an aid toward making "wax" of the butter.

11. The advertisements of the churn makers look as though the end-over-end barrel churns were far ahead. With these churns the churning, brining, salting and first working over can be done without other work than turning the crank. Some makers allow the butter to remain in the churn after salting for a few hours, and then take another pull at the crank, and by a series of quick motions and sudden stoppings, re-work the butter ready for the crocks.

12. Butter makers will find, if they inquire into the matter, that it is not this, that, or the other thing put into butter that gives it the lasting qualities, but that these qualities are due to painstaking care and watchful attention to every point in manufacture, and discerning the actual needs of the cream and butter at each stage. Salt has only a small office in the matter. Lot's wife, though excellently salted, disappeared from off the face of the earth, as will any other perishable article, where salt is relied upon to preserve it. Skill and salt do far better together in keeping butter than salt alone.

#### Treatment of Heavy Milkers.

Mr. A. B. Allen, in *Bura's New Yorker* giving his experience with a young Jersey cow, says:

She came into my possession last October, and at both calvings, when two and three years old, with her former owner, she had milk fever. Her ration during the past winter was all the salt meadow hay she chose to eat, two quarts of Indian meal, two quarts of wheat bran, and one pint of oil meal night and morning. Five weeks previous to calving, the Indian meal was lessened gradually, and about three weeks before the event was to come off, it was stopped entirely, and the bran with only half a pint of oil meal was continued; but she was milked clean regularly as usual; during the last week before calving, her milk was reduced to about a gill night and morning, and it came very thick and glutinous.

[The cow calved safely, and the milk immediately changed to a light normal fluid, and the calf was allowed to suck three times per day for several days, and then weaned,

to be fed the milk instead of sucking it from the cow. After this she was milked only twice a day. In a couple of weeks Indian meal was again added to the wheat bran, at first a pint or so, gradually increasing till at the end of five weeks it was given with the bran at the rate of four quarts again per day. The oil meal was also gradually increased to one quart per day. The cow escaped milk fever and all other ailments, fed well and thrived finely. Mr. Stewart objects to cotton-seed and oil meal. I think the former is useful during pregnancy, although I am informed that it is fed in Great Britain with impunity. But the climate there is much more moist than in America, the grass is more lush in summer, and abundant roots are fed during winter. These probably neutralize any ill effects which might otherwise come from feeding cotton-seed meal. But as to oil meal, if prepared according to the old process method, and kept free from adulteration, I cannot think that a half to a whole pint morning and night, according to the size and appetite of the cow, can ever be harmful; on the contrary, it would be beneficial, especially when an indifferent quality of hay, like that grown on salt or fresh-water meadows, or corn-stalks, or straw is the ration, instead of good upland hay or clover. Pure oil meal has a very soothing effect on the bowels, keeps them in good condition, and assists the digestion, especially of coarse fodder. Indeed, I think it highly valuable in a moderate quantity for all kinds of stock. I feed it regularly even to horses, for to its other merits, it adds an improvement to their coats, giving them a softer and more glossy look.

#### Poultry Yard.

##### Poultry at Pennsylvania State Fair, Philadelphia.

For the time of year, there was an unusually fine display of poultry, and the young fowls were in excellent condition, though all suffered very much from extreme hot weather, and on Tuesday, 9th, the thermometer registered 90° in the building; a good many birds died.

The Light Brahmas were a very good class, the winning birds large and finely marked. A feature of the Show was the number of breeding pens. The finest breeding pen of Asiatics was a pen of White Cochins, which also won as best breeding pen (all breeds competing) on exhibition. The best display of Langshans we have yet seen at any show, not excepting the great display at New York last winter, was here shown. Plymouth Rocks were also, for the season of the year, excellent. The winning birds of Mr. McCracken of Chester, Pa., being splendid specimens.

Games were a good strong class, and the best cockerel in the exhibition was a Red Pile, exhibited by Mr. Dorsey, of Maryland. Brown Leghorns were a poor class, but Whites were well represented. Houdans were scarce, even those shown were not up to the mark in points or size. Some extra fine Bronze turkeys were shown, and also Rouen, Pekin and Aylesbury Ducks. In fact the Aquatic display was a fine one, better than is generally found in regular poultry shows. Bantams were numerous, nearly every known breed represented. Pigeons, all the toy varieties well represented, but the high class birds were not specimens of high order. This exhibition was held under the auspices of the Pennsylvania State Poultry Society, J. D. Nevins, President, and to him is mainly due the success, both in number of entries, (there being over 1000 entries of poultry) and excellent specimens shown, and good management of the show.

G. O. B.

#### Poultry Diseases and Their Remedies.

A writer in the *Chicago Poultry Keeper* thus writes of diseases and troubles of poultry, and the treatment to be applied:

**ROUP.**—Whenever you have a northeast storm, with damp, chilly, disagreeable weather, look out for the roup. Roup is to the fowls what heavy colds are to human individuals, and as we may have cold in the head, cold in the bowels, sore throat, and other disturbances from cold, the term "roup" covers them all. Roup in some forms is contagious, while in other shapes it may exist in a flock without affecting any but those of weak constitutions. The first thing to do with the affected fowl is to clean out the nostrils, and every breeder should have on hand a small syringe, which should be put to use early. Roup, when malignant, makes known its presence by a peculiar disagreeable odor. The sick fowl looks droopy, and a slight pressure on the nostrils causes a discharge, which is very offensive in smell. Make a solution of copperas water, and with the syringe inject some of it into the nostrils, and also down the throat. If the bird is no better in a few hours, try a severer remedy, which is the injection of a mixture of coal oil and carbolic acid. Add ten drops of carbolic acid to a tablespoonful of coal oil, and force a small quantity into each nostril. This will cure when all other remedies fail. Night and morning give roup pills (or powder) either in the food or by forcing it down the throat. Add some, also, to the food of those that are well.

How to make roup pills is what most persons desire to know. The basis of all roup pills or powders is *asafoetida*. This is combined with tonics and cathartics. Here is the method, and by which a large quantity may be made at a small cost. Take one teaspoonful each of tincture of iron, red pepper, ginger, saffron, chlorate of potash, salt, and powdered rhubarb; mix them intimately. After thoroughly mixing add three tablespoonfuls of hyposulphite of soda, and mix together well. Incorporate this with one ounce of *asafoetida*, working it together until the whole is completely mingled, occasionally softening it, whenever necessary, with castor oil. This can be made into pills, or when dry, into a powder. It is of the same composition as many of the roup pills which are sold at fifty cents a box.

**CONDITION POWDERS.**—There are many suggestions for making hens lay, but their virtues depend upon stimulating the fowls and supplying them with materials for producing eggs. Here is a recipe which is a good one (much better than the majority), the cost of the ingredients of which is but very little. Take of bone meal, ground meat and parched wheat (ground), two pounds each; linseed meal, common salt, ground oyster shells and charcoal, one pound each; sulphur, copperas, common bread soda and fenugreek, half pound each; saffron, red pepper, ginger and hyposulphite of soda, one-quarter pound each. Have all the ingredients in a fine condition, mix them together thoroughly, and you will have about thirteen pounds of condition powder, at a cost of less than five cents per pound, and which is not only egg food, but a preventive and cure for many diseases. Give a heaping tablespoonful once a day to every ten fowls, in the soft food.

**LICE.**—This is not a disease, but is not out of place here. To be rid of them provide a dust bath, dust the fowls with Persian insect powder, clean out the poultry houses and coops, rub the roosts with coal oil, and whitewash the buildings inside and out with hot whitewash to which carbolic acid has been added.

**SCURVY LEGS.**—Rub the legs two or three times (once a week) with lard and sulphur, to which a few drops of carbolic acid have been added, or with a mixture of lard and



coal oil; but do not grease sitting hens in any manner, as it injures the eggs.

**TOXIC FOR FOWLS.**—Iron in any shape is beneficial to fowls. Copperas is sulphate of iron, and if a little copperas is added to the drinking water, or ground fine and mixed with their food, the benefit will soon be seen in the reddened combs and healthy look. If an old iron pot is used in which to keep the drinking water, the gradual oxidization of the iron by the water will cause particles of oxide of iron to be given off, which will be taken up by the fowls when drinking. A handful of nails, or old pieces of refuse iron, iron filings, or even iron cinder, if placed in the vessel containing the water, will more or less afford iron to the poultry. Iron is invigorating, stimulating, and assists in guarding the system from disease. Iron is in the blood of every living creature, and any deficiency thereof causes weakness and debility. The use of copperas is beneficial in another respect. It is a remedy for a great many diseases, is a good disinfectant, and a sure remedy against contagions of a certain character. Do not be afraid to use it. A table-spoonful of a solution of copperas in the drinking water for a dozen fowls is sufficient, and as it is cheap in price, the expense of its use is but a trifle.

**MOULTING.**—Moulting is simply shedding old feathers. Feed liberally, giving both the egg food and tonic. Warmth is one of the best remedies for all diseases, especially roup. Pip, or a thickening of the membrane of the tongue near the tip, impedes breathing, and sometimes suffocates, especially chicks. Clip off the end with a pair of scissors, if an extreme case, and give the bird a good mouthful of butter or lard, to which a few drops of coal oil are added. Bowel diseases other than cholera may be treated in this manner. Use castor oil for constipation, and castor oil with a drop or two of laudanum for diarrhoea. Always give clean water, free from filth.

#### Feeding Fowls.

The substances that may be used in poultry feeding are very numerous and various—cabbage, corn, turnips, carrots, parsnips, mangels, meal, oats, wheat, barley, rye, and other grains, substances too well known to require, and too numerous to be worth the trouble of enumerating. It will not answer to feed fowls wholly upon any one variety of food; neither will it be found advisable to feed wholly upon any one class of food; I must speak of the latter first. Fowls require a mixture of green food with hard food, fully as much as horses or cattle do. When the birds have the advantage of an extensive range they will find this for themselves; when they do not possess such advantage, you must provide green food for them. Some do so by presenting the birds with cabbages or other greens, *chopped small*. This occasions waste. Fasten heads of cabbage, lettuce, rape or other green herbs to some fixture by means of their root, and let the fowls pick for themselves. This practice not merely prevents waste, but is in consequence of the amusement it affords, decidedly conducive to health.

I do not think that one circumstance connected with the feeding of poultry, and that a most important one, is sufficiently well known. I allude to the necessity they are under of obtaining animal food. Of course, when the birds possess the advantage of an extensive run, they can themselves pick up worms, snails or slugs; and as in the case of ducks, etc., frogs and other small reptiles; but in cases where they do not possess this advantage, it is necessary that you cater for them. I have always experienced the best effects, especially as manifested in greatly increased laying, by giving scraps of animal food about twice or thrice a week to the fowls; I have also found the best mode of

doing so to be throwing down a bullock's liver, leaving it with them, and permitting them to pick *ad libitum*; of course, care must be taken that cats or dogs do not steal it; I further think that the liver is better given raw than boiled.

When a hen pines, or seems disposed to be thin, you need not hesitate in giving buckwheat, with even a liberal hand; but you must so manage as not to permit to share in this department of your bounty such hens as are disposed to become too fat. According as hens take on fat, they usually fall off in laying, and this should be particularly kept in mind in feeding. When hens are disposed to flesh, you will find hemp-seed the best promoter of laying.

Fowls of all kinds require sand or gravel as an aid to digestion, being, in fact, necessary to promote a medium of trituration in the gizzard, as well as to supply calcareous matter for their egg-shells. You should, therefore, always have such placed within the bird's reach. This, I must admit, applies more immediately to such fowls as are kept in a confined yard; when the range is at all extensive, the birds can usually pick up enough for themselves. Fresh water gravel is the best; if you live near the sea, and wish to use sand, so easily obtainable from the beach, you should first wash it, and in two or three waters. Where no sand of any kind can be obtained, as in towns, you can buy chalk, or give them plenty of old mortar; you will, of course, pound before placing it in the yard.—*The New England Poultry Breeder*.

#### Processes for Keeping Eggs.

##### THE SCIENTIFIC AMERICAN PROCESS.

Having filled a clean keg or barrel with fresh eggs, cover the eggs with cold salicylic water. The eggs must be kept down by a few small boards floating on the water, and the whole covered with cloth to keep out dust. If set in a cool place the eggs so packed will keep fresh for months, but they must be used as soon as taken out of the brine. To make the salicylic solution, dissolve salicylic acid (which cost about \$3 a pound) in boiling water, one teaspoonful of acid to the gallon. It is not necessary to boil all the water, as the acid will dissolve in a less quantity, and the rest may be added to the solution cold. The solution or brine should at no time come in contact with any metal. In a clean, airy cellar one brine is sufficient for three months or more, otherwise it should be renewed oftener. For that purpose the kegs, etc., should have a wooden spigot to draw off liquid and replenish the vessel. Butter kneaded in the same solution and packed tight in clean stone jars will keep fresh the whole winter, but must be covered with muslin saturated in the water, renewing it sometimes. Cover the jars with blotting paper saturated with glycerine. Salicylic acid is harmless, and yet one of the best and certainly most pleasant disinfectants in existence, with no color nor taste. The water is an excellent tooth wash and the best gargle to prevent diphtheritic contagion.

The different processes below are taken from the journals mentioned in the titles:

##### THE POULTRY MESSENGER PROCESS.

Eggs will soon become cheap comparatively, and methods for keeping them will be inquired for. Smearing the shells with linseed oil is reported to be a good way. Rub the oil over the egg with the tip of the finger and suffer it to become dry on the shell. Eggs rubbed over with flax-seed oil in three months lost four per cent., and in six months four and a half per cent. of their weight, and when opened were found to be fresh, with the smell of fresh eggs. Eggs not so treated lost eleven per cent. of their weight in three months, and in six months thirteen per cent.

##### THE NEW ENGLAND FARMER PROCESS.

The plan of a French chemist for preserving eggs is as follows: While quite fresh they are gently struck against each other to see if they be "sound," next they are placed in a kind of earthen pitcher having a very narrow bottom. When the vessel is full, a solution of a quarter of an ounce of quick lime to one quart of water is poured in. The lime water permeates the shell till it reaches the first membrane, rendering the latter impervious. The pitchers are then placed in a cellar, from which all light is excluded, but a uniform temperature of 44° to 46° F. is maintained. In the course of a few days a pellicle forms on the surface of the water in each pitcher (carbonate of lime), and that must never be broken till the moment for withdrawing the eggs. This process enables the eggs to be kept fresh for six or eight months, and not more than five in a thousand prove objectionable.—*Poultry Keeper*.

#### The Apilary.

##### Bee Husbandry.

B. F. J., the well known writer on agricultural topics, says in *Hearth and Home*:

We now seem to be in presence of one of those periodical awakenings which are a marked feature in specialties associated with agricultural pursuits. Now it is bee husbandry that is not only attracting the attention of thousands for the first time, but other thousands have only recently engaged in it.

Of all specialties related to and associated with agriculture, bee husbandry is among the most ancient, the most generally followed, and the most seductive. But it is, at the same time, the most deceptive and hazardous, yielding enormous profits compared with the capital invested, when successful, and entailing losses in a similar measure, when not. In these respects bee husbandry resembles some other agricultural industries—dairying and poultry breeding for example—with the advantage of more chances of success with the latter, and the disadvantage of more capital required.

For success in dairying and in poultry breeding, climate, the situation, the crops, the soil and the weather go for a great deal, but one may fortify one's self against these by prudence and forethought, and laying in stores of food in advance. In bee husbandry, the climate, the crops, the soil, the situation, and above all the weather, count for everything. If it is too hot, the bees become lazy, and not only is the honey small in quantity, but it is poor in quality, and soon sours. If the crops are not the honey producing plants, or if the soil does not produce them, the bees will work hard for poor pay. In respect to the weather, if a long and severe drought occurs, bees scarcely make honey enough to carry them through the winter; if the flowery season is wet, the pollen and nectar in the flowers fall, and in the summer deluges of wet seasons, bees caught abroad are beaten to the ground and killed by the violence or by drowning. Nor, as in case of poultry breeding and dairying, can any satisfactory preventives be provided against these accidents of climate and the weather.

Central Illinois may be regarded as a fairly good bee country. Trees which produce bee pollen early in the spring are numerous; fruit trees are white or purple with flowers in April and May; by the 20th of the month white clover is in bloom in pastures and meadows on all sides. This lasts six weeks or more, and reappears in a second crop in September and October. In July and August the asters, the golden rods and other bee plants abound; and yet since, and including 1880, there has been but one good and profitable year for bee husbandry. In 1881 drouth prevented the storage of food for winter use,

and swarms froze to death or starved by the thousands. In 1883 the crop of honey was a phenomenal one. In 1883 the season was so cold, with rains so many, little or no honey was stored, and bees perished during the winter, as in 1881. This year bees did almost nothing satisfactorily up to July. Then the deluges of the month—eighteen inches of rain in two weeks—destroyed an enormous number. Since August they have been doing better, as the autumn flowers—the asters and golden rods now in bloom—and if the weather is favorable from this time till frost, they will go into winter quarters with enough to carry them over and have something to spare.

Nevertheless, with all these disadvantages, we advise everybody having a disposition that way to try bee husbandry. But above all, begin on a small scale, for bees increase without purchase, much faster than experience. In case you succeed, you will learn at what a price success has been attained; and if you fail, you will learn at least, that honey costs all it brings when it sells for 30 cents per pound.

##### Bees in September.

If a few bees are seen entering the hive, it should be examined. Perhaps from some cause the colony is queenless; and unless proper attention be given, its stores will soon fall a prey to the bee-moth's larva, or to robbers. In localities where buckwheat or other field forage is abundant, bees sometimes swarm in the early part of September. By having such swarms, giving them sheets of comb foundation or empty combs, and perhaps supplying them with a frame or two of brood, they will usually build up fair colonies by winter, and will frequently be found among the best the succeeding year. Honey is a luxury. Many people do not go to the grocer expressly to buy honey, and only purchase it when seen. Comb honey is usually placed in a side glass case; and extracted honey too frequently is kept out of sight. Bee-keepers would do well to furnish each grocer with a neat stand, upon which to expose his extracted honey for sale. Nearly all extracted honey will soon begin to crystallize or "candy," and it should be placed in vessels in which it is to be stored. The writer markets his honey in small tin pails, varying in size from one pint to two quarts. These are filled with honey just as it begins to crystallize, and when solid, the pails have neat labels affixed, stating that crystallization is a good test of purity, and that a gentle heat will soon liquify the honey.

The present month is an excellent time to change the stock of bees. The main honey harvest is over, and if the colony remains queenless a few days, the loss is not great. The best queens are reared during the height of the honey season, and can be bought very cheaply. Purchase queens of the nearest reliable breeders, as long journeys by mail often exhaust them of their vitality to an injurious extent.—*American Agriculturist*.

##### The Pennsylvania State Fair,

Now in progress at Philadelphia, is a fine display. The grounds are convenient to the city, the buildings commodious. The entries of horses and cattle are very numerous, the latter including all the popular breeds, the Guernseys and Jerseys predominating. Among the latter is a draft from the Burnside Park Herd of Mrs. Shoemaker, including such noted animals as the Black Prince of Linden, Princess 3d, Oxford Kate, Khedive's Primrose and others. Although competition was strong, the Maryland cattle carried off the herd prize, first on bull, first and second on aged cows, first on heifer between two and three years, and a special prize for excellence in breeding. Another Maryland herd was shown, Mr. E. Gittings Merryman's Herefords. Guernseys were numerous, and there were some fine Holsteins and Friesians, Devons, etc. Elsewhere is a report of the poultry display.



# The American Farmer

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\* At the office of THE AMERICAN FARMER are located the offices of the following organizations, of each of which its proprietor, Wm. B. Sands, is secretary:

Maryland Horticultural Society.  
Maryland Dairymen's Association.  
Maryland State Grange, P. of H.  
Agricultural Society of Baltimore Co.

BALTIMORE, SEPT. 15, 1884.

## The Horticultural Show.

The Annual Show of the Maryland Horticultural Society will be held this year on Oct. 7, 8, 9 and 10, in the Natatorium, on north Howard street, where a large and interesting display is expected.

## The Gunpowder Farmers' Club

Met August 30th, at the residence of Mr. B. M. L. Hardisty. A rain storm prevented the usual inspection of the farm, etc. The question for discussion was whether commercial fertilizers paid and on what crops. The general verdict favored their use on wheat and rye; some members applied them everywhere. One or two were doubtful of profit in their use, but still continued to apply them.

## "Bagged Grapes"

Our friend, Mr. J. W. Kerr, of Denton, Md., kindly sent us some specimens of the newer grapes, as well as one or two of the older sorts, by way of comparison, to show the effects of bagging them, as soon as the young fruit sets. Nearly all the varieties were perfect and very handsome, and their treatment seems to have been a success. Especially fine were the Brighton, Croton, Jefferson, Lady Washington, Moore's Early, Pocklington, Prentiss, Vergennes, etc.

## The Baltimore County Fair.

This promises to offer a large and interesting exhibit in every department, and especially in improved stock, which abounds in the county of the very best quality. There are also numerous prizes for the best natives, grades and crosses, it being the desire of the Society to bring out a display in all classes of animals of superior merits, such as are possessed

ed by the average farmer who cannot afford to breed thoroughbreds. Of this kind are the prizes for grade or native cattle, for a herd of such, headed by an improved bull adapted to its improvement, etc. There is also a prize for the best grade dairy cow, either sire or dam to be thoroughbred, and for this no exhibitor of registered cattle can compete, the object being to encourage farmers to the improvement of their stock.

The dairy competition is always lively at these fairs. Prizes of \$30 and \$12 are given for the best and second best six pounds of butter (three in rolls and three in prints) made from the skimming of the milk to the completion of the butter, by boys or girls under sixteen years old.

The Timonium fair is a general holiday making among the people of Baltimore county, and the attendance is usually large. There are attractive track events, numerous diversions, and a good time generally for the agricultural community.

The fair grounds are at Timonium, about ten miles north of Baltimore on the Northern Central Railway, whose tracks run direct to the grounds, there being frequent trains at very low rates. The date of the fair is September 30th and October 1st, 2d and 3d.

## Jersey Cattle.

The Jersey cattle advertised elsewhere and now at the Baltimore Quarantine are an exceedingly fine lot, principally of solid color, and ranging in age from cows of four years to calves of but a week old. In this importation are three daughters of Lemon Peel, who inherit the valuable blood of Coomassie, Young Rose, and Yankee. This famous sire, died on the Island last year and his immediate get are limited in number, which should attract the attention of purchasers. The cow Bobby's Diana, is a half sister of Lemon Peel, on the sire's side, and there are, besides, daughters of such well known bulls as Napoleon, Forget Me Not, (both sons of the famous Farmer's Glory) of St. John, Cicero, Orange Peel, Cetewayo, etc. The vicinity of Baltimore has for years been the home of many fine herds of Jersey cattle, and in our surrounding country (as wherever she is best known) the Jersey cow has gradually become recognized as the best of all butter makers. On this account the interest manifested in her was never more earnest than at present, nor her value and worth ever at a higher standard of appreciation. This is strongly shown by the desire of Jersey owners to constantly improve their herds by purchases of newly imported registered animals, and by the rapidly growing desire of almost every country resident, to possess at least one pure blooded registered Jersey. The present importation per Nessmore will be sold at Baltimore, during the early part of October, by auction, and affords an excellent opportunity to purchase at home the highest class of registered Jerseys. We hope the sale will receive the full support of all those interested in this class of animal, which at New York and Philadelphia is continually realizing such high prices.

## On Gettysburg Battle Field.

On a cloudy August morning we steamed out of Hillen depot, along the beautiful route of the Western Maryland, with its pleasant wayside stations, past Mount Hope, McDonough, the Wilson Sanitarium, Glyndon and Emory Grove camp, crowded as never before, over the Hanover and Gettysburg Railroad, to the great battle field. Twenty-one years ago, we went thither as soon as we could after the firing, remaining one month on the field, and as we ride through this green and pleasant country today the horrors of that time rise before us. We pass Hanover Junction, and recall the crowded train of workers which went forth

at midnight from our city, and the strange feeling it gave us when we heard Hanover called out in the darkness, and knew that we were nearing Gettysburg.

In the latter the cars now stop (except on excursion trips, when they run all the way to Little Round Top Park) before the door of Adams Express office, which in those days, was for weeks daily packed with coffins of the dead, being removed by their friends from the battle field. That large Square of the Diamond was heaped with piles of muskets which had belonged to the fallen. We passed them with a poor widow whose eldest child, a lad of seventeen, had been killed in the battle. She had five little ones to support, and this boy had written to her that he would not on any account be away, as on the result of this contest his country and state would depend. Raising his head from behind a stonewall he was fired on and instantly killed. He was the main stay of the widow, who came on thinking he was wounded. Her great wish was to get his body home—a gentleman having promised to have it buried in his lot. She had but fifteen dollars in the world, and handed us this to manage for her. She paused beside the muskets to exclaim, "I suppose my boy is there" and the sight of the express office recalled the fact that her dead son had "sent his little bit of money to her through it." We did what we could for her, but who could comfort her?

Being anxious to see as much of spots once sadly familiar, as we can in a few hours' stay, we hurried out of the Diamond to Ziegler and Holtzworth's to secure a competent guide and carriage. Mr. Holtzworth has acted in this capacity since 1865, and has studied the field thoroughly. Scarcely a day passed without visitors, and excursions to this memorable spot, which is also being re-visited by officers and men, identifying old positions and interests. Once only, in these twenty one years, have we re-visited the place, that was on the day the National Cemetery was dedicated. Then, with feelings that cannot be described, we rode to the spot first used as the Field Hospital of the Second Corps, about two miles out, near Rock Creek, southwest of the Baltimore pike. The ashes of our old fire were there then, the cans, broken bottles, boxes and straw; the grave of Lieut. Prestgraves of Virginia, for whom we cared, with seventy other southern wounded. They have gone; the ground is deserted, silent.

Who, passing over it, or any part of this bloody field, can know the agony by which it has been consecrated? Much of the ground has been bought by the Battle Field Memorial Association, and is carefully kept; tablets, guide boards and monuments, some very elegant and costly ones, marking leading spots. We wonder that the same has not been done with Antietam, the only battle of note within our own state. Surely the bridge there, the lane, and some other spots, should be kept and handed down thus to those who come after us. So anxious was Gen. Crawford to preserve the field of Gettysburg, that he bought a large part of it, and does not allow it to be disturbed. In going out of the town, we pass a small stone house to which Gen. Reynolds was brought; in it he died. The end window of a house farther on, was used by sharp shooters as a point from which to pick off union officers, etc.

A shell from Round Top burnt the barn which stood where this one now does, and with it a number of Union wounded. That cherry tree has a twelve pound shot in it. This beautiful red clover grows in the famous peach orchard Longstreet is said to have declared the fighting unsurpassed for fierceness on this farm—he left fourteen hundred dead on it. There are tablets in yonder wheat field. Both the Round Tops are owned by the Memorial Association, and are marked

with monuments and slabs here and there by the way side; and in fields we pass monuments to fallen heroes of different regiments, telling how many men went into action and how few returned. These gigantic boulders in Devil's Den were used by sharpshooters. The spots on Little Round Top, in which Generals Vincent, Weed and Hazlett were killed, are marked. The headquarters of Sedgwick and Sykes have a board to designate them. A militia camp is on the spot where Pickett made his great charge on the third and last day; it is very near the town. General Webb's monument is here, on this ground of the last assault. A Philadelphia regiment erects this monument over fallen comrades, four hundred and ninety-five having been killed. A tablet to the Fourteenth Connecticut tells of thirty-four battles in which the regiment took part. In that small house Jenny Wade was killed on the second day. The National Cemetery is exquisitely kept and beautiful. Thirty-five hundred rest here—many are unknown dead. The Monument with figures of Industry, War, History and Peace, surmounted by Victory, is very fine. A superb avenue of silver maples leads past the long lines of graves. Ten years ago many of the Southern dead were removed to Hollywood Cemetery, Richmond. Some are buried in Loudon Park, Baltimore.

MRS. J. B. MOORE BRISTOL.

## Helpful Help.

Assuming that everybody has some object in life worthy of attainment, it should be the pleasure of everybody else to lend a helping hand when they can do so just as well as not. This sounds utopian, but it is a principle underlying all good fellowship. Of course, all the world is not bent upon a worthy object—in fact, the exceptions are largely preponderant; therefore, it becomes a problem, not only to individuals, but in every philanthropic channel, who ought to be helped. All agree, however, that it is safe to help those who try honestly to help themselves, and cite a divine precedent therefor.

There is, nevertheless, a strain of human frailty interwoven with our best efforts when we lend our assistance; we all want to do it in our own way, which way may perhaps be really the best way, and in all probability would be the best for ourselves; but in the majority of cases our pet way does not harmonize with those of the party upon whom the burden of responsibility rests. This is, I think, the reason why we so often fail to see good results from our efforts to help others, and also why people are not as grateful for such assistance as we feel they should be.

It seems, therefore, a safe rule to help people in their own way, unless there is something radically wrong in it. Even suggestions of improvement upon methods of doing things appear ungracious while we are in the position of helper. Right minded people inwardly protest against being helped, although they accept such help thankfully, because the necessity can not be evaded; and under these circumstances, help that chimes in with their usual way does not imply mismanagement or inefficiency, on the part of those helped, but simply inability to accomplish so much.

The self asserting help that would take the whole duty out of the legitimate hands in a way that seems to say: "you don't know how!" is extremely aggravating; how much so, few of us learn to know until we have had to be helped ourselves.

Help to be helpful must be willing, graceful and timely. Very little assistance one day may go further than extraordinary help another; hence, when an opportunity offers which our heads and hearts approve, it does not answer to wait until we "feel like" doing it. If we do the chances are our help will not prove acceptable, and we will fail to win either self approval or the appreciation of those we meant to help. Perhaps if they spoke their minds freely, they would say: "I needed your help yesterday, but you did not see fit to give it; I can manage now as well as then without it."

Depend upon it, if we go through the world with the idea of being helpful in our own way and just when we feel like it, we will miss our opportunities all the way, and when we present our final accounts it will be found that we have received far more than we have given.

CRRS.



## Horticulture.

## Moorestown, N. J., and Vicinity.

Moorestown, New Jersey, is the paradise of the fruit grower. During a recent visit to this favored spot, I was impressed with the rapid strides made in practical horticulture. Foremost among the fruit growing localities scattered here and there throughout the country, a visit to the spot cannot but amply repay the lovers of fine fruits. It is the home of numerous nurserymen and noted fruit growers, who have made the town famous on account of the many valuable new fruits originated and disseminated from within its borders. Among them might be mentioned Parry, Collins, Perkins, De Cou, Walton, and a score of others well known to the fruit growers of the country. The country around Moorestown is unequalled for beauty and fertility by any other section of New Jersey, and for advanced horticulture by any other section in the United States. The Moorestown fair was being held while I was there, and for an unpretending county fair, seemed to merit the remark made by "Judge Biggle," in the *"Farm Journal,"* that it was the model fair of the country. The display of fruits and vegetables was very large and fine, surpassing by far many of our state fairs in this respect, but somewhat "off" in regard to the bane of most agricultural fairs—horse racing, gambling, side shows of the fat woman, big snakes, lager and three card monte men.

Although financially it did not seem to amount to much, yet the friendly rivalries, jolly good humor, and general air of sociability displayed to friend and stranger alike, could not fail to leave the impression upon the mind that it was a grand success after all. The true spirit of progress and improvement was manifested on all sides, and it would be well for some of our managers of agricultural fairs to pay them a visit, and get back to first principles in regard to their management.

Moorestown is being rapidly built up of late years, being a favorite spot for country homes of retired and active business men of Philadelphia. Its settlement, however, dates back to nearly that of Philadelphia itself, as the preponderance of the quaker element goes to prove, and to this latter fact may the general prosperity of the place be attributed.

The Keiffer pear is creating quite a furore at Moorestown, many thousand trees of this variety being set out each year; it is also headquarters for this valuable variety, nearly all the nurserymen having on hand a heavy stock which seems to meet with ready sale. The "Early Cluster" blackberry, as also the "Wilson Junior" and several other sorts lately originated there, are each striving for the ascendancy, and are being "boomed" into notoriety upon a trusting public. The "Hansell," "Superb," "Rancocas," and several other kinds of new raspberries, originated in the vicinity of Moorestown, and along with the "Marlboro," are the candidates for public favor at present writing.

May King, Parry and several other varieties of strawberries, are the new ones for next season, and Moorestown and vicinity are made happy in anticipation of the rich harvest to be gathered in from the lovers of novelties in fruits.

A short distance from Los Angeles, Cal., and bordering upon the banks of the Los Angeles river, is a vineyard covering 2,400 acres. It was planted two years ago, and will not come into bearing until next season.

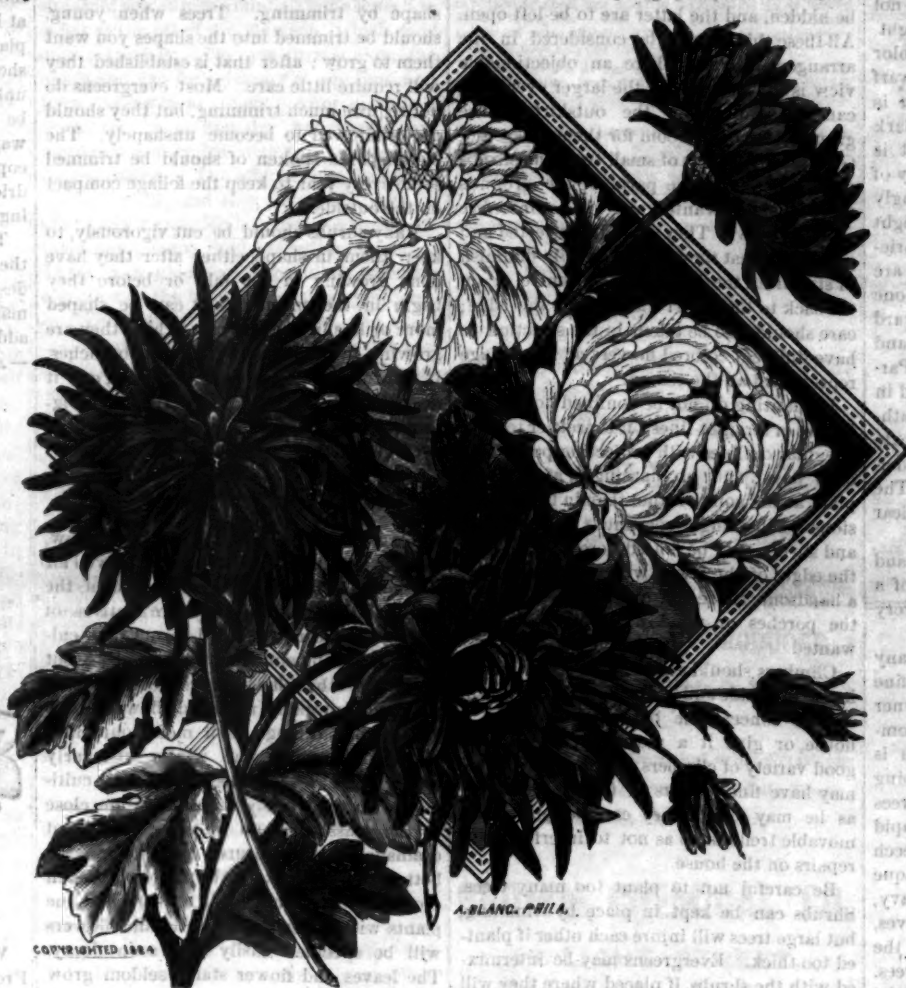
## Autumn Work in Greenhouse and Window-Garden.

During the summer months our windows are destitute of plants, and only Ficuses, Palms, Cycads, Aspidistras, and others that we use to decorate our tables, sideboards, and halls, find room in our houses. Until October, plants are generally better out-of-doors than in the house. But we should be careful to preserve them from frost, by covering them over with newspaper, cotton sheets, or other material, if they are still unpotted and growing in beds. But if they have been potted, we can, on the eve of a frosty night, remove them to the piazza or under the trees or bushes, and thus protect them against injury.

We should now include what plants we mean to winter over in our windows, and act accordingly. We need young plants of Abutilons, Coleuses, Geraniums, Double

Tender plants, as Dracanas, Crotons, and especially those that have colored leaves, should be kept on the piazza, as cold, damp nights injure the tips of their leaves. Gloxinias, Achimenes, and Gesners may be allowed to dry off preparatory to storing them part of the winter on a shelf in a warm, dry place. Musk may also be permitted to dry off before storing it in a cool place in the cellar; but it should not be kept damp.

Madeira Vine, German and English Ivy, Cobaea, and similar vines, are pleasant in our windows in winter, and should be brought in readiness now. But if room is scarce for other plants, these vines can be dispensed with,—the Madeira Vine, like Potatoes, in the cellar, the English Ivy in a cool place there, too; the German Ivy, as a bunch of cuttings in a four-inch pot in the window; and the Cobaea thrown away—we can get it from seed next spring, plants that will grow



Petunias, and others for next summer's garden; also Callas, Bouvardias, Carnations, and others to blossom in winter, and should have a place for both. But we should not try to keep more than our room will justify; better have a few good happy-appearing plants than a multitude so crammed together as to injure one another.

So long as the weather continues warm and genial, we should not mar our borders or beds by lifting those plants we wish merely to keep over for next summer's garden. But Bouvardias, Callas, Petunias, Sweet Alysium, Heliotropes, and Begonias, that we require for furnishing flowers in winter, should be lifted early and become well established in their pots before cold weather sets in. Geraniums, Heliotropes, and many others may, after being lifted and potted, perfect the flower-buds then upon them; but, that done, they are not likely to bear any more till they have made fresh roots and started into fresh growth.

Tea-roses for winter and spring use had better be potted early and kept plunged out-of-doors in a sheltered place; if well rooted, a slight frost won't hurt them.

twenty feet, and blossom from the end of July till killed by frost in October.

Chinese Primroses, Cinerarias, and Calceolarias love the cool, fall weather, and now start into vigorous growth. Keep them cool, well ventilated, and copiously watered, and scatter some tobacco trash on the top of the soil in their pots, as a preventive of green fly and thrips.

Geraniums, Show Pelargoniums, Coleuses, Iresines, Alternantheras, and other bedding plants that we wish for next year's garden, and cannot well raise from seed, should now be propagated from cuttings. Put six to ten in a four-inch pot, to stay there till next spring. A gentle hot-bed is an excellent place in which to root cuttings of tender plants at this season; but if in a moderately sheltered and shaded place, and they are kept somewhat moist all the time, cuttings will root freely without any artificial heat.

Yellow and red Oxalises should now be potted and allowed to start slowly into growth. All kinds of "Dutch" bulbs, as Hyacinths, Tulips, and Narcissus, may be potted as soon as received, and kept in a cool place, as in a shady frame, shed, or cellar

floor, and covered over with a few inches deep of coal ashes, sand, earth, or other material to keep the bulbs moist and cool and allow them to fill their pots with roots before they send up leaves or flowers.—*Wm. Falconer in American Garden.*

## Care of Geraniums.

It is altogether useless to expect that Geranium plants, which have flowered all summer in the open air, will, if taken up and potted, continue to bloom equally well during the winter season also. If Geraniums are wanted for winter flowering, they must be specially grown during summer, although it is not yet too late to prepare a few plants for that purpose. If plants have not been specially reserved, a few should be taken up immediately and potted, care being taken to select the most compact and perfectly formed specimens.

In potting select porous or soft-baked pots, proportionate to the size of the plant, and place in the bottom of each at least an inch of broken pots, in order to insure perfect drainage. Keep the plants in the center of the pots, and firm the soil well around their roots. When the plants are potted, water thoroughly, and place in a shady situation for a week or ten days, after which time they should be exposed to the sun. Have them well supplied with water, and remove all flower-buds until it is time to bring them inside, which will be on the approach of cool weather. Give them a light, sunny situation, and an average temperature of 55°. Do not crowd the plants, and turn them occasionally so as to develop an even, symmetrical shape.

The most suitable compost for Geraniums is a mixture of two-thirds well-rooted sods from an old pasture; one third well-decayed manure, and a fair sprinkling of bone-dust, thoroughly mixed and pulverized before using. Water should be given as often as necessary, care being taken to give an ample supply, and when the pots become filled with roots, liquid manure water should be given twice a week. One ounce of guano, dissolved in two gallons of water, will be a proper proportion for this purpose.

When large specimens are desired the plants should be repotted as often as the pots become filled with roots, or until they have reached the desired size, when they can be treated as above advised.

There are so many good varieties in cultivation that most amateurs find it quite difficult to make a selection of the most distinct, so for their benefit I enumerate twelve double and twelve single flowering varieties, all of which may be relied upon as first class:

Double.—Jas. V. Murkland, Heroine, Mrs. E. G. Hill, Mary Geering, Pocahontas, Jas. Vick, J. H. Klippart, J. P. Kirtland, Richard Brett, Bishop Wood, Asa Gray, and Golden Dawn.

Single.—Clement Bontard, Master Christine, Jean Suley, W. C. Bryant, Mary H. Foote, New Life, Evening Star, Mrs. Windsor, Mrs. Gordon, Progress, Cygnet, and Aurora.—*Cor. American Garden.*

## Japanese Chrysanthemums.

The chrysanthemum has come into sudden use as the most popular fall flower, and the varieties are of almost endless shades and shapes. The Japanese sorts, an engraving of which we give from Mr. Halliday's Fall Catalogue, are attractive by their striking colors and peculiar forms; in many the flowers are like a mass of colored threads; some are self colored, others are curiously marked and spotted. This section is well adapted for late flowering in the green-houses.



### Trees and Shrubs for Home Lawns, and their Arrangement.

A large growing evergreen, like the Norway Spruce, is not a suitable tree for a small lawn, yet it is frequently planted where there is only a space of a few feet; the consequence is the yard is completely filled, everything about the tree killed, the windows shaded and the house made gloomy.

There are many dwarf evergreens of great beauty and variety in form and foliage, that are suited for small lawns, and that can be readily obtained. The Japan *Retinisporas* give us several fine hardy trees. *Retinispora squarrosa* is a slow growing, dwarfish tree, irregular and picturesque in outline, with foliage of a delicate bluish green—the finer branches in tufts with their tips drooping. *Retinispora plumosa* has light green, soft and fine foliage, arranged in flattish branches. It is a conical and symmetrical tree, and not a rapid grower; its var. *aurea*, has a bright, golden-yellow foliage, and holds its color throughout the season, and is more dwarf than the type. *Retinispora obtusa nana* is more rare, but it is very pretty, with a dark green foliage in peculiar twisted tufts; it is quite dwarf. There is a golden variety of the Creeping Juniper that is exceedingly pretty where a low spreading mass of bright foliage is required. There are many varieties of the American Arbor Vitæ, that are very dwarf. The Little Gem grows from one to one-and-a-half feet high, the Woodward four feet; both perfectly regular oval, and always symmetrical without pruning. Parson's compacta is very regular and round in outline, as though sheared. The Heath-leaved has a heath-like foliage of a delicate purplish or reddish green, very soft and delicate and rather upright in growth. The Tom Thumb is smaller in foliage, of a clear green and more spreading habit.

The Weeping Norway Spruce is odd and desirable as a single tree, or the center of a group of very dwarf evergreens; it is very dwarf and does not spread wide.

Among deciduous trees there are many rare and beautiful varieties, to have a fine specimen of which would give the owner more satisfaction than a forest of more common kinds. The Cut-leaf Birch, which is pure white bark and graceful drooping branches, is one of the most beautiful trees grown. The Cut-leaf Silver Maple is rapid growing and graceful. The Weeping Beech is one of the most massive and picturesque trees that can be planted; with its heavy, dark green foliage, and long sweeping curves, and the Weeping Slippery Elm is one of the most picturesque and graceful weeping trees. Among the colored foliage trees we have the purple Beech, Birch and Maple, the variegated Maple, Ash and others, and there are also many desirable dwarf growing trees fine in foliage or flower, or both, such as the Sumacs and Cornus Florida, with fine flowers and brilliant autumn foliage; the Judas tree, clothed with purple flowers in spring; the Silver Bell tree, with its white, bell-shaped flowers before the leaves.

Among shrubs, the colored foliage varieties deserve especial attention. The golden leaved Elder and Spiræa are both bright and hold their color well. The purple Barberry and Hazel are very rich in contrast. The golden variegated leaved Wiegelia has also handsome flowers. The variegated Althea is fine in foliage, and all are neat in growth.

Among dwarfed shrubs, the variegated Corchora is neat and pretty; the variegated Euonymus Radicans is hardy and pretty—also the dark green type; and a Japan species, Euonymus Nana, has a fine foliage, which turns a rich purplish red, and is very pretty in the winter, peeping through the snow. The Andromeda Polifolia has a purple foliage in winter, and makes a symmetrical dwarf shrub that is covered in the spring with pinkish white flowers—all of these, excepting the first, are evergreens.

I will not attempt to give a list of desirable flowering shrubs—they are so numerous. But be careful to select only those that are neat in habit, and do not require much trimming to keep them in good form. The trees and shrubs I have spoken of are only given as illustrations of the classes they represent, as there is a great variety from which to choose.

The arrangement of the trees and shrubs is intimately connected with their selection, and must be considered first or at the same time. Decide where you will place your groups, and the single specimens; in arranging them, keep in mind that it is best to secure the longest stretches of lawn in the outlooks not necessarily bare of trees, for it may be seen through the openings between groups of trees or single specimens. There are also views that are objectionable, and others that are pleasing; the first two are to be hidden, and the latter are to be left open. All these things must be considered in the arrangement, and where an objectionable view is to be cut off, the larger evergreen can be planted on the outskirts of the ground, if there is room for them to spread. Groups and borders of small trees and shrubs may be placed in the parts of the grounds where they are wanted, and will not interfere with the views. They should be selected and planted so that they will gradually diminish in size, from the larger in the centre or on the back to the dwarf varieties on the edge; care should also be taken in the selection to have different colored flowers or fine foliage represented all the season.

In planting do not be confined to regular figures or straight lines; it is prettier to have irregular outlines with projecting points and deep bays; and in planting in after years, plant at the points rather than in the depressions. Fine single specimens of rare trees and shrubs may be dotted here and there on the edges of the lawns where there is room; a handsome shade tree may be planted near the porches or windows, where shade is wanted.

Climbers should also be used freely on the house for shade and ornament. Nothing will so well conceal the bare appearance of a house, or give it a more cosy look than a good variety of climbers in abundance. One may have fine flowers or foliage, according as he may select; they can be placed on movable trellises, so as not to interfere with repairs on the house.

Be careful not to plant too many trees. Shrubs can be kept in place by trimming; but large trees will injure each other if planted too thick. Evergreens may be intermixed with the shrubs, if placed where they will not be much shaded; or you may make evergreen groups, with a fine specimen in the centre and smaller kinds on the outside, that will be very attractive and ornamental. Very pretty permanent foliage beds may be made with the dwarf colored varieties if they are planted close together and sheared. The *Yucca filamentosa*, or Adam's Needle, is valuable for an ornamental bed. It is always hardy, always green, and a magnificent object when in full bloom.

Ornamental flowers and foliage beds made of green house plants should not be attempted, unless under the charge of one who has had experience in such work. Most florists who grow these plants can do the work in a satisfactory manner. Such beds are showy during their short season, but they are killed by the first frost, and from that time until the next June or July, when the beds are not covered with snow, they are bare and homely. There is not one-half the satisfaction to be derived from them as there is from a well selected border of hardy herbaceous plants, which should be in every garden in some pretty spot away from the roots of large trees, and not too much exposed to public view, for, as a general rule, a hardy plant border is not showy.

A collection of one hundred plants will furnish flowers of all colors from earliest spring to latest fall. There is always something new and you can always find plenty of flowers to decorate your rooms or make a bouquet.

The question will be asked: Where these trees and plants spoken of can be obtained? They can be obtained of nearly all large nurserymen who grow ornamental trees and shrubs, and it will be found always more satisfactory to deal directly with the nurseryman himself.

After your place is made, it must be taken care of. If it is attractive to yourself and friends it will be a pleasure to keep it so and the work will not be a drudgery. The lawns should be mowed at least once a week, when the grass is growing vigorously; the weeds should not be allowed in the beds, drives and walks, and the trees and shrubs kept in good shape by trimming. Trees when young, should be trimmed into the shapes you want them to grow; after that is established they will require little care. Most evergreens do not require much trimming, but they should not be allowed to become unshapely. The *Retinisporas* spoken of should be trimmed some every year to keep the foliage compact on the outside.

Many shrubs should be cut vigorously, to keep them in shape, either after they have done growing in the fall, or before they begin in the spring; they can be shaped more or less in the summer, while they are growing, by pinching off the young branches. If a shrub is awkward and ungainly, cut it nearly to the ground; it will throw up vigorous shoots and make a good shaped plant. —*Cor. Ladies' Floral Cabinet.*

### Chinese Primroses for In-Door Culture.

For a neat, flowering plant in the window, there is nothing which will repay so well for the space occupied, as one or two of the Chinese Primroses. They are natives of China, and are not adapted to out-door culture. They bloom freely under glass, but unlike the other classes of primroses, require sun, and if properly managed, flower all the year round, although their most flourishing season is through the winter and early spring. All that is necessary for their cultivation is a moderately warm situation close to the glass, medium moisture, and good drainage, which is secured by filling in the bottom of the crocks with pieces of broken crockery. It is not well to sprinkle the plants with water, as the leaves and flowers will be speckled easily and soon decay. The leaves and flower stalks seldom grow higher than about six inches, and if the plant grows top-heavy, it should be supported by a few little sticks placed near the collar of it. As the plants do not flower so well after the first year, it is therefore advisable to procure young plants every year, or to raise them from seed. This, however, is not easy; the seeds being very fine, if carelessly watered, or allowed to dry out, they will be lost.

In sowing the seeds, care must be taken to cover them lightly with the soil, or what is better, not to cover them at all, but to press them gently into the surface of the soil with a smooth piece of wood. The watering should be done by saucers placed underneath the pots, or by very fine sprinklers, so as not to wash the soil; but even after the young plants have developed two or three leaves, they require careful watering; if the soil is permitted to get dry, the very tender roots may be dried up in a few hours. Our way of treating the seed is this: We water the lower body of earth in the pot by a saucer, and cover the surface from time to time with a wet cloth, so as to leave the seeds undisturbed.

Of the Chinese Primroses, we have now some most beautiful varieties, double and single; the double white is certainly a

beautiful plant, although it does not bloom so continuously as the other. The fringed flowers are considered the very best.—*California Horticulturist.*

### Freeseias.

Few new plants have gained so rapidly in popular favor as these beautiful Cape bulbs. Two years ago they were hardly known by name even to any one except botanists; while now a collection of winter-flowering bulbs is not considered complete without several pots of Freeseias.

The bulbs are rather small, and half a dozen may, therefore, be planted in a six-inch pot, covering them with about an inch of soil. A rich, sandy, potting soil, as is generally used for Hyacinths and other Dutch bulbs, is also used for these. For early winter blooming, they should be planted this month, and by making subsequent plantings at intervals of two or three weeks, blooming plants may be had all winter. At first they should be kept cool and moderately moist until the leaves appear, when they have to be removed to a sunny window or other warm and light place, and watered more copiously. After flowering they should be dried off, and not started again till the following autumn.

The graceful form of flowers, as well as their exquisite fragrance, makes them very desirable for the window-garden, and their remarkable keeping quality, after being cut, adds greatly to their value for florists' work. —*American Garden.*

### Freesia Refracta Alba.



We give herewith an engraving of the Freesia referred to in article above.

### Home Department.

#### Hot Water Remedies.

Half's *Journal of Health* publishes some interesting facts relative to hot water as a remedial agent. It says:

"There is no remedy of such general application, and none so easily attainable, as water; and yet nine persons out of ten will pass by it in an emergency to seek for something of far less efficiency.

There are but few cases of illness where water should not occupy the highest place as a remedial agent.

A strip of flannel or a napkin folded lengthwise and dipped in hot water and wrung out, and then applied around the neck of a child that has the croup, will usually bring relief in ten minutes.

A towel folded several times and dipped in hot water and quickly wrung and applied over the seat of pain in toothache or neuralgia, will generally afford prompt relief. This treatment in colic works like magic. I have seen cases that have resisted other treatment for hours yield to this in ten minutes. There is nothing that so promptly



cuts short a congestion of the lungs, sore throat or rheumatism as hot water, when applied promptly and thoroughly.

Pieces of cotton batting dipped in hot water and kept applied to old sores or new cuts, bruises and sprains, is the treatment now generally adopted in hospitals. I have seen a sprained ankle cured in an hour by showering it with hot water poured from a height of three feet.

Tepid water acts promptly as an emetic, and hot water taken freely half an hour before bed-time is the best of cathartics in the case of constipation, while it has a most soothing effect on the stomach and bowels. This treatment continued a few months, with proper attention to diet, will cure any curable case of dyspepsia.

Headache almost always yields to the simultaneous application of hot water to the feet and back of the neck.

It is an excellent plan to record facts like these in a note book, which should be always at hand when wanted. In the anxiety caused by accidents or sudden illness in the family, one becomes confused and is not apt to remember quickly what should be done; hence there may be prolonged and unnecessary suffering before proper remedies are applied."

#### Household Hints.

**HOW TO CLEANSE WASTE PIPES.**—One of the most frequent and trying annoyances of house-keeping is the obstruction to the free, quick outlet of the waste-water of the wash-stand, the bath and the kitchen sink. This is caused by a gradual accumulation of small bits of refuse material, paper, rags, meat, bones or other offal, which check and finally entirely stop the out-flow of the waste-water, and then the plumber is called to remove the stoppage with his force-pump. Sometimes this is effective, at others the offending waste-pipe is cut out and a new one put in its place at considerable cost. But the plumber is not always near at hand or free to come at one's call, and the matter demands immediate attention. A simple inexpensive method of clearing the pipes is as follows: Just before retiring at night pour into the pipe enough liquid soda lye to fill the "trap," as it is called, or bent portion of the pipe just below the outlet—about a pint will suffice for a wash-stand, or a quart for a bath or kitchen sink. Be sure that no water runs into it till next morning. During the night the lye will convert all the offal in the pipe into soft soap, and the first current of water in the morning will remove it entirely, and leave the pipe as clean as new.—*German-ton Telegraph.*

**HOW TO GET RID OF BLACK ANTS.**—A correspondent asks: "How shall I drive black ants from my pantry?" I was afflicted one summer by the arrival of an army, well marshaled, as it appeared, of large black ants. They took possession of the pantry and of everything in it. I tried various experiments, but for a time none were successful. At last I hit on this single expedient: We carried out every eatable, including a tightly-covered sugar-box; then we put, temptingly, on the wide lower shelf, a good sized piece of custard pie. In ten minutes it was literally filled with ants, which were then easily disposed of. The house wife can decide for herself how this shall be done. Cremation or drowning are recommended. Then we put moist pieces of cake in the same place, and in the course of the afternoon the ants were exterminated, with the exception of a few stragglers, who evidently carried the tidings far and near, for we were never troubled with ants any more.—*N. Y. Post.*

**APPLE JELLY.**—Take red-skinned apples, wipe clean, and cut into quarters, but do not peel them. To each pound of fruit put three pints of cold water, bring to a boil, then boil rapidly for thirty minutes. Strain, and to every pint of juice allow one pound of loaf sugar, return to the pan and again boil rapidly for thirty minutes.

#### BAFFLED!

One of the Most Unaccountable and Dangerous of Recent Diseases Discovered and Exposed.

There is some mysterious trouble that is attacking nearly everyone in the land with more or less violence. It seems to steal into the body like a thief in the night. Doctors cannot diagnose it. Scientists are puzzled by its symptoms. It is, indeed, a modern mystery. Like those severe and vague maladies that attack horses and prostrate nearly all the animals in the land, this subtle trouble seems to menace mankind. Many of its victims have pains about the chest and sides, and sometimes in the back. They feel dull and sleepy; the mouth has a bad taste, especially in the morning. A strange sticky slime collects about the teeth. The appetite is poor. There is a feeling like a heavy load upon the stomach; sometimes a faint all gone sensation is felt at the pit of the stomach, which food does not satisfy. The eyes grow sunken, the hands and feet feel clammy at one time and burn intensely at others. After a while a cough sets in, at first dry, but after a few months it is attended with a greyish colored expectoration. The afflicted one feels tired all the while, and sleep does not seem to afford any rest. He becomes nervous, irritable, and gloomy, and has evil forebodings. There is a giddiness, a peculiar whirling sensation in the head when rising up suddenly. The bowels become constive, and then, again, outflux intensely; the skin is dry and hot at times; the blood grows thick and stagnant; the white of the eyes become tinged with yellow; the urine is scanty and high-colored, depositing a sediment after standing. There is frequently a spitting up of the food, sometimes with a sour taste, and sometimes with a sweetish taste; this is often attended with palpitation of the heart. The vision becomes impaired, with spots before the eyes; there is a feeling of prostration and great weakness. Most of these symptoms are in turn present. It is thought that nearly one-third of our population have this disorder in some of its varied forms, while medical men have almost wholly mistaken its nature. Some have treated it for one complaint; some for another, but nearly all have failed to reach the seat of the disorder. Indeed, many physicians are afflicted with it themselves. The experience of Dr. A. G. Richards, residing at No 468 Tremont street, Boston, is thus described by himself:

"I had all those peculiar and painful symptoms which I have found afflicting so many of my patients, and which had so often baffled me. I knew all the commonly established remedies would be unavailing for I had tried them often in the past. I therefore determined to strike out in a new path. To my intense satisfaction I found that I was improving. The dull, stupid feeling departed and I began to enjoy life once more. My appetite returned. My sleep was refreshing. The color of my face which had been a sickly yellow gradually assumed the pink tinge of health. In the course of three weeks I felt like a new man and know that it was wholly owing to the wonderful efficiency of Warner's Tippecanoe The Best, which was all the medicine I took."

Doctors and scientists often exhaust their skill and the patient dies. They try everything that has been used by, or is known to, the profession, and then fail. Even if they save the life it is often after great and prolonged agony. Where all this can be avoided by precaution and care, how insane a thing it is to endure such suffering! With a pure and palatable preparation within reach, to neglect its use is simply inexcusable.

To CRYSTALLIZE GRASSES make a strong boiling hot solution of water and Epsom salts; then draw the bunches of grass through it, and hang up in an airy place to dry. In a short time a very pretty effect will be produced by the crystallization of the salts.

#### Baltimore Markets—Sept. 16.

**Breadstuffs.**—Flour.—The market is quiet and nominally steady with ample offering, but no pressure to sell. We quote as follows: Howard street and Western Super \$3.30 @ \$3.75; do. do. Extra \$3.00 @ \$3.75; do. do. Family \$4.00 @ \$5.00; City Mills Super \$3.75 @ \$3.75; do. Extra \$3.00 @ \$3.50; do. (Rice brands) \$4.43; Baltimore Winter Wheat Patent \$5.00; do. High-grade Family \$5.50; do. Second-grade Extra \$5.25; do. Third-grade Extra \$5.00; Fine \$5.00 @ \$5.25; Rye Flour \$3.75 @ \$4.00; Corn Meal \$1.00 @ \$1.50 @ \$1.50; Calvert's Excelsior Graham \$7.50.

**Wheat.**—The market for Southern is firmer in tone, in sympathy with the advance in Western. The arrivals meet with fair demand. Fair to choice samples sold at \$2.80 @ \$3.00 for Fultz and \$2.91 @ \$3.00 for long-berry. Tough to fair parcels brought 75 @ 80 cts. and rakings 60 @ 67 cts. Western ruled irregular but fairly active and higher, closing easy, however, and slightly off from the highest prices. The closing quotations were at 83 1/2 @ 83 3/4 cts. for spot, 83 1/2 @ 83 3/4 cts. for September, 83 1/2 @ 83 3/4 cts. for October, and 85 1/2 @ 85 3/4 cts. for November.

**Corn.**—Southern is in moderate supply and the market is firm for white, but easy for yellow, with sales of prime at 70 cts. for the former and 66 cts. for the latter. There is nothing doing in Western, and the market is dull and purely nominal.

**Live Stock.**—Beef Cattle.—Trade has been quite slow to-day. Prices ranged as follows: Best \$5.02 1/2 @ \$5.00; that generally rated first quality \$5 @ \$5.02 1/2; medium or good fair quality \$3.25 @ \$4.50; ordinary thin Steers, Oxen and Cows \$2.25 @ \$3.00. Extreme range of prices \$2.25 @ \$5.00. Most of the sales were from \$3.00 @ \$5.25 per 100 lbs.

**Swine.**—Trade has been moderately active with prices ranging from 6 to 7 cents for grassers, 5 @ 6 cts. for the better grades, and extra 8 1/2 cents per lb. net.

**Sheep and Lambs.** Good sheep were in fairly good demand. We quote butcher Sheep at 3 1/2 @ 4 1/2 cents, and Lambs at 3 1/2 @ 5 1/2 cents per lb. gross. Stock Sheep \$2.25 per head for Ewes, and 3 1/2 @ 4 cents per lb. for Wethers.

**Provisions.**—The Western markets are quiet, and easy, without material change. A fair jobbing trade is reported at unchanged prices. Packed lots from store are quoted as follows: Bulk shoulders, 7 1/2 cts.; clear rib sides, 11 1/2 cts. Bacon shoulders, 8 1/2 cts.; clear rib sides, 13 1/2 cts. Hams—Sugar-cured, 15 1/2 @ 16 1/2 cts. Refined Lard, in tierces, 9 1/2 cts. Mess Pork, \$18.25.

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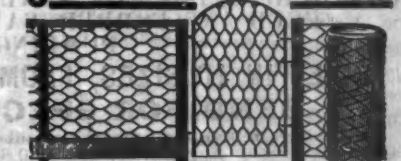
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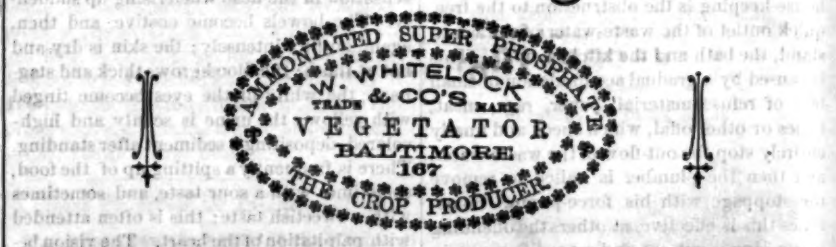
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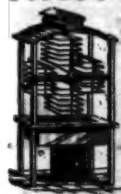
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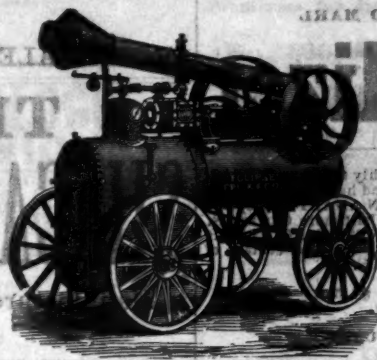
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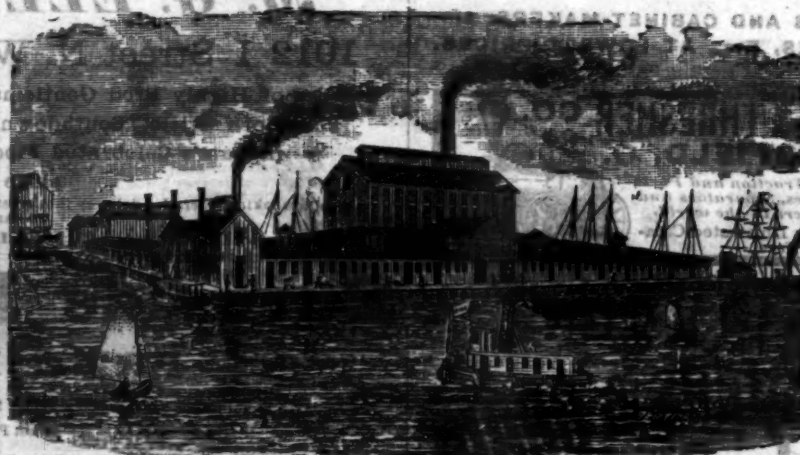
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